

# MARINE RECORD

ESTABLISHED 1878.

VOL. XX. No. 22.

CLEVELAND---JUNE 3, 1897---CHICAGO.

\$2.00 Per Year. 10c. Single Copy

## LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

### PRESIDENT.

CAPT. JAMES W. MILLEN, Detroit, Mich.

### VICE PRESIDENTS.

J. S. Dunham, Chicago.	Howard L. Shaw, Bay City.
C. E. Benham, Cleveland.	F. J. Firth, Philadelphia.
David Carter, Detroit.	L. S. Sullivan, Toledo.
S. D. Caldwell, Buffalo.	M. J. Cummings, Oswego.
W. H. Wolf, Milwaukee.	Geo. Berriman, Erie.
W. C. Farrington, Duluth.	

### SECRETARY.

CHARLES H. KEEP, Buffalo.

### TREASURER.

GEORGE P. MCKAY, Cleveland.

### COUNSEL.

HARVEY D. GOULDER, Cleveland.

### COMMITTEE ON LEGISLATION.

L. M. Bowers, Cleveland.	Wm. Livingstone, Detroit.
E. T. Evans, Buffalo.	J. S. Dunham, Chicago.
P. P. Miller, Buffalo.	S. D. Caldwell, Buffalo.
H. C. French, Buffalo.	Jesse Spaulding, Chicago.
Charles Paine, Buffalo.	C. A. Eddy, Bay City.
Edward Smith, Buffalo.	Alex. McDougall, W. Superior.
H. M. Hanna, Cleveland.	F. J. Firth, Philadelphia.
James Corrigan, Cleveland.	

### FINANCE AND EXECUTIVE COMMITTEE.

James Corrigan, Cleveland.	W. P. Henry, Buffalo.
John Mitchell, Cleveland.	J. J. H. Brown, Buffalo.
H. A. Hawgood, Cleveland.	R. P. Fitzgerald, Milwaukee.
Thos. Wilson, Cleveland.	C. W. Elphicke, Chicago.
M. A. Bradley, Cleveland.	H. G. Dalton, Cleveland.
J. C. Gilchrist, Cleveland.	W. C. Richardson, Cleveland.
Edward Smith, Detroit.	B. L. Pennington, Cleveland.
L. C. Waldo, Detroit.	
D. C. Whitney, Detroit.	

### COMMITTEE ON AIDS TO NAVIGATION.

Geo. P. McKay, Cleveland.	W. M. Egan, Chicago.
W. H. Becker, Cleveland.	Frank Owen, Ogdensburg.
C. E. Benham, Cleveland.	A. W. Colton, Toledo.
J. G. Keith, Chicago.	James Davidson, W. Bay City.
W. A. Hawgood, Cleveland.	Alvin Neal, Port Huron.
Thos. Wilson, Cleveland.	M. M. Drake, Buffalo.
John W. Moore, Cleveland.	Philip Minch, Cleveland.
W. A. Livingstone, Detroit.	

### MARITIME LAW.

The United States District Court, District of Minnesota, Fifth Division.—In Admiralty.

The Western Transit Company and R. Murray, Master of the Steamer Arabia, vs. The Steamship "George G. Hadley."

H. R. Spencer, Proctor for Libellant.

C. E. Kremer, Proctor for Claimant.

This is a libel for salvage, filed in this court by the Western Transit Co., owner of the steamer "Arabia," and by R. Murray, master, on behalf of himself and the crew of said steamer, against the steamship "George G. Hadley," her tackle, apparel, furniture and cargo, on the 9th day of September, A. D. 1895; upon which a monition duly issued on the same day out of and under the seal of this court, by virtue of which the Marshal of said district, on the same day, at Duluth in said district, duly attached the said steamship "George G. Hadley," her engines, etc., and cargo, described in said monition; and made due service of said monition. And that thereafter on the 10th day of September, 1895, "George G. Hadley" duly filed his claim as owner of said steamship "George G. Hadley," and on the same day duly executed his bond with F. M. LaSalle as his surety thereon whereby the said George G. Hadley, as claimant, and F. M. LaSalle as his surety, obligated themselves to R. T. O'Connor, Marshal of said District, in the sum of twenty-five thousand dollars, to abide by all orders of the Court interlocutory and final, and pay the amount awarded by the final decree rendered by this Court, or by any appellate court, if an appeal intervene, with interest against said ship and cargo. That said bond was on the 10th day of September, 1895, duly approved by the Special De-

puty Collector of Customs at said port of Duluth and was duly delivered by the obligors therein to the said Marshal, who, thereupon, on the same day released and delivered the said steamship George G. Hadley and its cargo to the said claimant, and afterwards filed said bond in this court. That said claimant answers said libel, and proofs were taken and submitted, from which it appears that on the seventh day of September, 1895, the said steamer "Arabia," R. Murray, master, being on a voyage from the port of Duluth in the State of Minnesota to that of Buffalo in the state of New York, with a cargo mostly of flour, near ten o'clock in the forenoon sighted a steamship about five miles from the southern coast of Lake Superior and opposite the mouth of Eagle River, making signals of distress, and on approaching, found it to be the steamship "George G. Hadley" laden with a cargo of wheat and bound from the port of West Superior to that of Chicago. There was a strong wind blowing from the West Northwest and a high sea, and said steamship George G. Hadley had lost her rudder, and was therefore almost unmanageable and in considerable peril; and the master of the George G. Hadley requested the master of the Arabia to aid in rescuing said steamship George G. Hadley from her dangerous situation. The master of the Arabia at first attempted to tow the Hadley, but after breaking a hawser in such attempt, went to the stern of the Hadley and passed two hawsers from the bow of the Arabia to the stern of the Hadley, and caused the Arabia to act as, and in the place of a rudder, in steering the Hadley, and thus assisted and returned with the Hadley to the Port of Duluth, where the said George G. Hadley was repaired, and the said libel for salvage filed.

The value of the steamship "George G. Hadley" is admitted to be the sum of \$70,000, cargo \$45,000 and freight for the trip \$2,450. The value of the steamer Arabia is shown to have been \$80,000, cargo \$40,000, and freight for the trip \$2,000. The Arabia was delayed two days in assisting the George G. Hadley at an expense of \$125 a day, and had one hawser, worth \$150 rendered worthless in the same service.

The service rendered by the Arabia to the George G. Hadley in this case was simply a salvage service, in every way meritorious, skillfully performed and deserving of substantial reward. The Hadley was without a rudder, the waves ran high, and the wind was strong, driving toward a rocky shore. Her signals of distress showed that the officers and crew regarded her situation and condition perilous. The master of the Arabia assumed considerable risk to his own vessel and cargo from the dangers of collision in such a heavy sea when approaching the other vessel sufficiently near to pass lines to her and render the required aid. He performed the entire service skillfully and with complete success. An award of salvage is necessarily a discretionary award, varying with conditions and circumstances, such as the value of the vessel and cargo saved, and the danger from which she is rescued; the value of the vessel and cargo risked, and the hazard to which it is exposed, the skill employed and the measure of success. Public policy requires that salvage allowances shall be sufficiently liberal to induce seamen, even at much risk and inconvenience, to succor and rescue endangered vessels.

In this case as a fair salvage I award to the libellants the sum of five thousand dollars. This will cover the expense of delay—\$250; the value of hawser rendered worthless—\$150; and four per cent. of the value of the vessel and cargo saved. If distributed rateable upon the value of the vessel and cargo the award would be \$3,043.50 against the vessel and \$1,956.50 against the cargo. But as the bond of claimant is to pay the amount awarded by

the final decree against the ship and cargo, such distribution will not be necessary. Of the amount awarded, seven-tenths should go to the owner of the steamer Arabia, one-twentieth to the master, and the residue to be divided among the master, officers and crew of the same vessel, in proportion to their wages. The libellants are also entitled to costs and to prompt remedy upon said bond.

A decree may be prepared and entered in accordance herewith.

May 25th, 1897.

WM. LOCHREN,

Endorsed:

Judge.

Filed May 27, 1897.

WM. A. SPENCER, Clerk,

By T. H. PRESSNELL, Deputy.

### EASTERN FREIGHT REPORT.

The Weekly eastern freight report from Messrs. Funch, Edye & Co., of New York City, to the Record, states that the list of fixtures for the week shows up fairly well for grain cargoes for later months, whilst for prompt shipments no advance could be secured on full cargoes, and the berth freights accepted by larger boats were closed at starvation rates. The Cork f. o. b. rates for August may be considered established at 3s, and owners' views are probably for an advance in September and later months. Inasmuch as from present appearances cotton will be late for shipment this season, any advance for September and part of October will entirely hinge upon the demand existing for shipment of our grain at those periods. Enquiry for deals from the Provinces is slackening off, and freights show a declining tendency in consequence, whilst vessels continue offering freely. Timber freights from the Gulf ports have apparently reached high-water mark in view of declining demand for tonnage, whilst case oil vessels for the Far East continue in good request, with fair prospects of owners, by holding off, securing the higher rates which, at the moment, shippers are unwilling to concede.

Rates for sail tonnage have been well maintained during the week, owing to scarcity of unemployed vessels, although the demand is not very brisk. Case oil freights to the Far East show an advance for Chinese ports, and prospects for suitable tonnage seem fair, except for cargoes to Java, the demand for which is dormant. The charters for barrel oil to Europe have almost all been closed on the other side, owing to absence of supply of suitable vessels on the spot. The demand for lumber from the Gulf to South America is very limited, but prospects are good for a revival of the demand for the River Plate in the next few months. Naval stores are very quiet, charters being apparently supplied with all tonnage required.

### LITIGATION.

The hearing under the commission to take testimony in the action brought against the Central Vermont Railroad by the insurance companies on the loss arising from the burning of an elevator at Ogdensburg, will take place at the office of Schuyler and Kremer, in Chicago, June 4. Louis Hasbrouck, counsel for the railroad company, will represent the Central Vermont's interest.

### LAUNCH OF THE NIAGARA.

The steel steamer Niagara, built by F. W. Wheeler & Co., for D. O. Mills, of New York; A. L. Hall, of Bay Mills, Mich., and J. Crosthwaite, of Buffalo was launched on Saturday afternoon. She is 281 feet over all 40 feet beam and 19 feet molded depth. She will carry pulp wood from Bay Mills to Niagara Falls.



## NEWS AROUND THE LAKES.

## BUFFALO.

Special Correspondence to the Marine Record.

The shipments of coal for the season up to Tuesday, June 1, amounts to 198,850 tons, against 299,334 tons up to the same time last year. It is predicted that this falling off will continue for a while, and then a rush will set in which may be taken advantage of by vessel owners.

Messrs. Russell & Watson, of 145 Main street, are to the fore in fitting up ship lamps and galley fixtures. There is hardly a line on the lakes which the firm has not supplied with some of their goods and having been in business for half a century, their work tells.

Special Correspondence to The Marine Record.

The big steamer Andrew Carnegie came in at 11 o'clock Wednesday morning with her record breaking cargo and went to the Sturges elevator. She was drawing about sixteen feet two forward and sixteen feet six aft. Her cargo, as reported from Duluth, weighs 5,570 net tons and consists of 171,000 bushels of oats, 55,000 bushels of barley and 51,000 bushels of wheat. This is the heaviest grain cargo ever afloat on the lakes.

While being towed to the Raymond elevator at Buffalo on Sunday, drawing 16½ feet of water, the steamer Neosho grounded in the government channel and it required an hour of hard pulling by the tugs Fabian and Alpha to release her. Later on the steamer frequently touched upon the rocky bottom of Erie basin. A huge rock 14 feet long, 6 feet wide and 4 feet high has recently been located in the basin, and it is supposed that the Neosho found this obstruction. This rock is to be removed at once by blasting. The water at Buffalo on Sunday was 14 inches below the usual stage.

Saturday was the day for opening the excursion season, but the weather was so cold that scarcely anyone turned out. Practically nothing but the boats were ready. The old disturbances between the excursion boats and the northern line passenger boats will probably not be revived. The excursion lines are fewer and the northern company has given up all claim to the dock from which they start. It is very probable that Buffalo will see the liveliest excursion season this year than ever before, and a late opening will eventually redound to the better earnings of all the excursion lines.

Anent the proposition that the Western Transit Co. were averse to having the crew of the Arabia receive any recompense for salvage services. General Manager Dauglas says that there had never been any objection on the part of the line to the salvage claim of Capt. Murray and crew of the steamer Arabia in the steamer Hadley case. The line was perfectly willing that the crew should have some salvage money, which was earned in picking up the Hadley on Lake Superior, as it was legal and just. The Record's editorial of two weeks ago certainly had something to do with this decision as I never heard of a crew taking any money out of a salvage case before it was sprung in the Record.

## DETROIT.

Special Correspondence to The Marine Record.

The Windsor, Detroit and Soo Line of Canadian passenger and freight steamers will begin the summer season from Windsor, June 29. The Cambria and Carmona have been refitted at Medford, Ont.

Vessels will scamper through Lake St. Clair, unless held down by government rules. I notice that the Record advertises a caution from the Secretary of War, but the situation will remain the same unless a penalty is imposed and due authority is on the ground to substantiate the claim for disobeying rules.

Edward Morse, an oiler on the steamer Thomas Maytham, had his left foot badly crushed while the boat was passing through the river. In some way his leg got caught in the cog wheels of the engine. He was put ashore and sent to the marine hospital, where it was necessary to amputate a portion of the foot. The injured man is 19 years of age and lives in Buffalo.

Capt. William Cary died late on Wednesday night at Benton Harbor in his seventy-ninth year. He was 32 years master of various craft, sailing the lakes from Detroit, Chicago, St. Joseph and other points before the danger shoals were marked. Capt. Cary sailed the first brigantine out of Detroit that floated on Lake Huron or Erie, and was harbor master at Benton Harbor for several years after he quit the lakes. He leaves a widow, with whom he celebrated his golden wedding in 1892; also four daughters and two sons.

Mr. Robert Logan, of Cleveland, and Mr. Frank Kirby, of this city, held a survey on the steamer State of Ohio at Cleveland on Wednesday. The hull is not damaged any, but the engine is almost a complete wreck and will have to be replaced by a new one. The wheels and shaft are about the only parts of the machinery that are not damaged. It will take about four or five weeks to put the steamer in shape for business again. The work will be rushed as rapidly as possible, as the boat is badly needed on her route. The State of New York will take the Ohio's place on the Buffalo route until repairs are completed and the steamer is put in first-class condition again.

A perusal of the libel papers in the case of the steamer Florida vs. the steamer Roby will show that a novel claim

has been made by the attorneys for the Florida. The schooner W. D. Becker, which was in tow of the Roby at the time she sank the Florida, is named as also at fault. Of course, it will be seen that this is done in order, if possible, to utilize the value of the schooner in part payment of the damages sustained by the Florida and her cargo, if it can be proven that the Florida was in no way to blame for the collision. The Becker was strung out behind the Roby perhaps 900 feet, on a tow-line. It was her duty to ring bells every minute. The pilot rules of the lakes make this bell ringing compulsory. It shows all other vessels in the vicinity that a tow is near by, and warns them that after they have passed the towing steamer, going in an opposite direction, they still have the consort or consorts to keep away from. The Florida makes the claim that the bell on the Becker was not rung at all; that had it been done, the master and lookouts of the former might have had better guidance and perhaps might have been enabled to dodge the Roby. If it is decided that this contention holds good, then the Becker will also be appraised, and if the Florida wins the schooner will have to go with her steamer to satisfy the claims for damages. The Roby was built in 1889, is in good condition, and last year was valued at \$95,000 for insurance purposes. It is the opinion here that such is the depreciation wrought by the times in vessel property, she will be appraised for \$60,000 or less. This alone would go but a little way to satisfy the claim for \$172,000 made for the Florida, as nothing but the value of the offending vessel can be seized and utilized. The schooner Becker came out in 1893, and last year was valued at \$58,000; she would probably be appraised at \$35,000 or less.

## CHICAGO.

Special Correspondence to The Marine Record.

Capt. John Prindiville chartered the steamer Oscar T. Flint for corn, South Chicago to Port Huron, at 1½ cents.

At Miller Bros.' shipyard the steam yacht Thistle and Catherine C. were in dry dock for bottom cleaning and painting.

At the Independent Tug Co.'s floating dry dock the tug Chicago is in for some repairs, the tug Wm. Dickinson was in for repairs to shoe and stern bearing.

The Goodrich Transportation Co.'s steamer Atlanta, Capt. Wm. Nicholson, commenced running Tuesday, on her regular route between Chicago, Grand Haven and Muskegon.

J. J. Rardon & Co. chartered the steamer Caledonia for oats to Buffalo at 1 cent, the steamer Italia for oats to Buffalo at 1-16 cents, the steamer Bulgaria for oats to Buffalo at 1½ cents.

The new tug William McCarty, recently built by E. W. Heath, of Benton Harbor, arrived here on Sunday, in tow of the tug Leslie. She is to be inspected and will then go into commission.

The O. S. Richardson Fueling Co. are having the hull of the schooner C. C. Trowbridge fitted out with a derrick for fueling steamers and chutes for fueling tugs. When completed she will be towed to South Chicago, and kept supplied with coal and used as a fueling dock.

On Tuesday grain shippers were after tonnage and all that was offered was pretty well cleaned up at 1½ cents on corn to Buffalo. It is likely that a better freight market will shortly prevail here and this condition is due in a great measure to the holding off qualities of vessel owners outside of the line boats.

The Goodrich Transportation Co.'s sidewheel steamer Sheboygan, Capt. D. M. Cochrane, left here Wednesday, on her first trip since her rebuild, which has cost the company about \$30,000. The twin-screw steel steamer Virginia, Capt. H. E. Stines, will commence running daily excursions between Chicago and Milwaukee on Sunday, June 6th.

H. W. Cook & Co. chartered the steamer Panther for oats to Buffalo at 1½ cents, the steamer Fred Pabst for oats to Buffalo at 1 cent, the steamer Westover for cedar ties, Detour to Chicago, at 5 cents, and consort Bliss for cedar posts, Carp River to Chicago, at 3 cents, the steamer New Orleans for oats to Buffalo at 1½ cents.

Capt. Emil Christin, of the schooner Mediator, which arrived here last Thursday, reports that he caught a carrier pigeon which came on board the schooner on Sunday, May 23, between Two Rivers Point, Wis., and Manistee, Mich. The pigeon has a ring around its leg marked N. 2006, '96. Capt. Christin has taken good care of the bird and is anxious to return it to its owner. His address is 1532 35th street, Chicago.

Notwithstanding carrying charges on the lakes are now the lowest ever known, with vesselmen claiming they cannot make expenses in keeping their boats in commission, every day for a week has seen new additions to the fleets. Everything that wintered in the Chicago River is now in active service. There have been a few boats left over in Milwaukee, but these are now being put to work. Not over a half dozen boats are now in idleness in Milwaukee. Over 95 per cent of the carrying capacity of the lake marine is now in service. What all the boats are going to do is difficult to see, but owners who generally ask this question about other people's vessels, seem to have no idea that they are going to be left out in the cold themselves. The fact of the matter is that any owner loaded down with from five to ten hundred thousand dol-

lars' worth of floating property must put them to work and endeavor to make at the very least interest on his investment. I can only say that a fair earning looks somewhat problematical from our standpoint here.

## CLEVELAND.

Special Correspondence to The Marine Record.

On Tuesday ore cargoes were offered a little more freely, but rates held at 50 cents from Lake Superior ports and 40 cents from Escanaba with rather a waning freight market, at least no offers were higher than the above figures.

Mr. Edwin R. Bate, Guilford, England, connected with marine matters on the other side of the Atlantic, is visiting Cleveland this week and taking in the differences existing between the manner of doing business on the lakes and that in vogue East. Mr. Bate will leave for the West in a day or two and cover Detroit, Bay City, Chicago and Duluth.

The Hydrographic Office sends out the following: "The Cleveland waterworks tunnel crib No. 1 was sunk in Lake Erie and is located N. 20 degrees 30" E., true distant, 11,000 feet from Cleveland west breakwater (east end) lighthouse. Particulars of the light to be shown from this new crib will be furnished as soon as obtained.

The new steel schooner Constitution in the Ship Owners' Dry Dock is receiving forty new futtock angles and forty futtock plates which had to be furnished and replaced, also ten new shell plates and one re-rolled. This damage was occasioned by grounding at the Sailors' Encampment, "Soo" River. It is expected that the work will be completed by Friday night.

Mr. Frank Kirby, actual, practical and consulting engineer for the Detroit Dry Dock Co., was at this port on Wednesday looking over the damage to the passenger line steamer State of Ohio of the C. & B. Line. Her engines received lots of damage on the last trip up and it will take some time to put her in good order and condition again. It is a foregone conclusion that the repairs will be made in Detroit or else here with Detroit supervision.

The suit which was begun in the Court of Common Pleas in this city by the Brown Hoisting & Conveying Machine Co. against F. W. Wheeler & Co., shipbuilders, West Bay City, Mich., asking for \$15,000, alleged to be due on three promissory notes of \$5,000 each, attachments for money in the hands of the Etna Steamship Co., Bessemer Steamship Co. and Pickands, Mather & Co., having been issued, was dismissed on Wednesday, the matter at difference being immediately adjusted upon a meeting of the parties concerned.

Capt. L. C. Cole, of Daysville, N. Y., who has sailed the Negaunee during the past four seasons for Mr. M. A. Bradley, started out this season in the new tow barge Sydney G. Thomas, of the Bessemer fleet. L. M. Bowers, manager. On the first trip down the Thomas carried 4,787 gross tons and on the second trip 4,930 tons, which by the way is a close approach to the 5,000-ton mark. Capt. Cole will hereafter sail the John Scott, Russell at present in command of Capt. Parker and through the sickness of Capt. Clendenning, Capt. G. L. Durand will take charge of the Thomas.

The passenger steamer State of Ohio, with a large number of passengers, broke a connecting rod in her engine when twelve miles off Ashtabula on Tuesday morning, and her machinery was badly wrecked before it could be stopped. The steamer drifted for two hours before her signals were heard and assistance reached her. The tug Red Cloud towed her into port, and the passengers were sent here by rail. No one was injured. The damage is estimated at \$10,000. The Ohio will be here for survey and repairs. The State of New York will take her place on the Buffalo route and the City of the Straits will be put on the Toledo run.

The revenue cutter Andy Johnson was sold by the government on Tuesday to the naval reserve for \$2,250. There are two divisions of the Ohio organization of the naval reserve in this state. The cutter will be used as a training ship for the naval reserve. The Johnson brought considerable less than had been anticipated the famous old boat would sell for. She was appraised by the government officers at \$5,000, which was considered by some to be a low figure, as the cutter is in fairly good condition, notwithstanding her age. The boat was bid in by Lieut. D. H. Pond. Some Detroit parties bid on the Johnson. The boat, which is laid up in the river bed near the Globe Iron Works, will be put in shape and will prove a good vessel for her new owners. She is 175 feet long, 25 feet beam, and 12 feet deep. She is a sidewheel boat, and is equipped with the old walking beam engine. The Andrew Johnson was one of four federal boats put into service at the close of the civil war. There is not a better boat on the lakes for the purpose for which the Johnson was bought and no money to speak of will have to be expended on her. The price is so low that it was almost like giving the vessel away. Her machinery is in good shape.

## FLOTSAM, JETSAM AND LAGAN.

Fifty million feet of logs are to be towed to Alpena from Georgian Bay this season.

A raft of logs containing 3,500,000 feet has been towed to Bay City from Georgian Bay by the tug Traveler.

The propeller C. B. Lockwood, now at Sandusky, has gone out of commission, pending a revival of trade.

The steamer Stephenson, towing the big schooner Bell,



took four cargoes of ore out of Duluth during the month of May.

Rieboldt, Wolter & Co., of Sturgeon Bay, are about to build a large dump-scow for the Sheboygan Dredge and Dock Co.

Erie canal boatmen have taken 4,000 tons of pig iron from the Buffalo furnace for delivery at Brantford, on Long Island Sound, by boat direct.

The steamer Zenith City loaded this week at Toledo bound for Duluth with 5,000 tons of coal, the most ever taken out in one vessel from the former port.

Duluth reports that on Saturday last nine vessels took out from that port 38,626 gross tons of ore, the largest single day's shipment yet made from there.

Notice is given that the light on Poverty Island Shoal, a red can gas buoy, is reported as not burning. The light will be re-established at as early a date as possible.

The sidewheel steamer Eurydice will be put on the Cleveland-Rondeau route next week. The Eurydice has been running on Lake Ontario for several seasons.

James Davidson launched the new towbarge Athens from his yard at West Bay City, this week. She is 300 feet long, with 45½ feet beam and 24 feet molded depth.

Passengers can reach Sturgeon Bay from Chicago via Northern Michigan line steamers, which connect at Manistee with the Bon Voyage at lower rates than by any other route.

The steamer P. P. Pratt and consort Annie M. Ash made four round trips to Marquette last month. On one trip they took coal as an up cargo. This is considered very smart work.

Mrs. Partington desires to know why the captain of a vessel can't keep a memorandum of the weight of his anchor, instead of weighing it every time he leaves port.—Marine Journal, New York.

Capt. James Davidson has paid the fine imposed upon the tugs Prodigy and Industry at Duluth. It appears that Capt. Davidson failed to provide the tugs with lifeboats for the trip from West Bay City to Lake Superior.

Ore is now moving to the Duluth docks from the Mesaba range at the rate of nearly 600 cars daily from five mines. The Oliver, 190 cars; the Mountain Iron, 200 cars; the Ohio, 50 cars; the Biwabik, 75 cars, and the Commodore, 15 cars, and a few extra cars are sometimes added.

Repairs upon the steamer E. M. Peck at South Chicago will cost about \$3,500. The damage was occasioned through her stranding on Hyde Park Reef while the vessel was trying to reach Chicago. Dense fog is said to be responsible for the casualty.

Williams, Green & Williams, who have half of the \$1,650,000 continuous contract for deepening the Duluth-Superior harbor to a uniform depth of 21 feet, put the first dredge to work on Tuesday, and will have five in operation next week. The sundry civil bill has not passed, but work is begun, in anticipation that it will go through all right.

The authorities of the city of New York have placen a contract with John H. Dialogue & Son, the shipbuilders of Camden, for a new fireboat. The new boat is to be 115 feet long, 27 feet breadth of beam, and depth of hold 12 feet. The boat is to cost \$58,000, and will be completed in about six months.

Michael Burke, a seaman on the barge R. Hallaran, dropped dead while the vessel was being towed through Lake Erie, Wednesday evening. The Hallaran put the remains ashore at Toledo. Burke's home is thought to have been in Kingston, Ont. A sister lives somewhere in the province of Quebec.

McMorran & Co., the Port Huron wreckers, will recover the engine, boiler, anchors and chains and other outfit worth saving, of the steamer B. W. Arnold, which burned and sank five miles off the west entrance to the Portage Canal, Lake Superior, late last fall. If the hull is found in good enough condition it will be raised also.

Work on the new fog signal station at Menominee, Wis., was begun on Tuesday under the direction of Inspector John A. Jaffray, of Detroit. A government regulation whistle will be used as an aid to navigation and due notice of which will be given by the United States Light-House Board.

Unless ore in considerable quantities is sold within the next week, one of the large producing mines on the Gogebic range may suspend operations entirely. Two iron mining companies on the Marquette range will materially reduce their forces. Similar reductions may also be made at several properties on the Menominee range.

A wreck has been located twelve miles off St. Joseph, Mich., in from thirty to forty fathoms, which may prove to be that of the lost Chicora. The find was made by the crew of the fishing tug Sir Arthur, who encountered a spar attached to something on the bottom, but could not disengage it because of the roughness of the water. The spar is reported to be about 40 feet long and painted black.

John Jones, aged 79, one of the founders of the Pusey & Jones Co., died on Saturday last. Mr. Jones was born at Lancashire, Eng., his parents emigrating to Delaware about 1821. In 1849, with Joshua L. Pusey, he founded the firm of Pusey & Jones. Mr. Jones in 1866 withdrew, the Pusey & Jones Co., shipbuilders, being then formed.

The steamer Florida was coming down the lake, met the steamer Roby going up, near False Presque Isle, had

a collision, sank the Florida in twelve minutes by the watch, and the Roby saved all of the crew. The loss will be near \$175,000. They should get Capt. Bennett, of the Safety Freight Line, to tell them how to avoid a collision in a fog then these disasters would not occur. Both steamers are in fault, as they were going too fast in thick weather.—Port Huron Sunday Herald.

The Sturgeon Bay Advocate says: "The tug S. M. Fischer cannot do the same work she did before, since having been supplied with a new wheel of the Sheriffs make." This is a mis-statement, for which the Advocate owes the Sheriffs Manufacturing Co. an apology. The engineer of the tug, J. C. Ames, who can be relied upon as an authority in the matter, states that the Fischer's new wheel had effected an improvement of one mile per hour in her time, and as evidence that the management of the car-ferry fleet are well pleased with it he left an order for a similar wheel for the tug Ames.

## COMMERCIAL STATISTICS.

### PORTAGE LAKE SHIP CANALS, LAKE SUPERIOR, MICH., NAVIGATION SEASON OF 1896.

Statistics of vessels passing through the Portage Lake Ship Canals during the year 1896.

BOUND UP.										
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Tot'l.	
Steam.....No.	11	111	94	117	137	134	103	97	804	
Steam, net tonnage.....Tons	10150	70170	63599	45699	80393	93553	80077	75659	519300	
Sail.....No.	4	52	64	55	64	54	40	29	362	
Sail, net tonnage.....Tons	1991	27053	32485	26591	34159	29652	21767	16477	190175	
Coal.....Tons	6560	55504	69471	61749	66366	49107	54209	35898	398864	
Grain.....Bushels				333					333	
Manufact'd Iron, Tons		677	1153	663	3542	3009	725	4403	14172	
Copper.....Tons		4356	3154	2767	2748	2640	156	2465	18286	
Salt.....Barrels		8802	4940	10735	12150	21533	22713	18940	99813	
Limestone.....Tons		4729	5267	3407	4095	700	800	18998		
Misc. Mdse.....Tons	1904	15710	12596	11632	14246	18694	19787	22974	117543	
Total Cargo.....Tons	8464	82296	92382	81838	91820	77381	79184	67907	581272	
Passengers.....No.	5	524	5842	6357	5406	2631	107	29	20901	

RECAPITULATION.										
Total number of vessels.....	1166									
Total net tonnage, tons.....	709475									
Total freight, tons.....	581272									
Total passengers, No.....	20901									

BOUND DOWN.										
	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Tot'l.	
Steam.....No.	4	63	48	77	90	80	61	46	469	
Steam, net tonnage.....Tons	4133	25338	27567	40955	39585	43788	36217	28130	245713	
Sail.....No.	1	22	12	18	32	19	21	14	139	
Sail, net tonnage.....Tons	519	9548	5905	7755	16476	11960	10392	6236	68791	
Copper.....Tons	3229	11364	7085	9461	9370	7116	3969	4593	56187	
Grain.....Bush.		200				50000	50000		100200	
Wheat.....Bush.		80	18000			10700	74650	122000	225430	
Flour.....Bbls.	14100	82560	108190	94935	137090	150690	105400	81178	774143	
Iron Ore.....Tons			946		3937	6710	2000	4062	16755	
Pig Iron.....Tons		3	1030		2158	1432	1705	1704	8032	
Lumber.....M.		13865	5962	12921	13469	9139	18201	7374	80931	
Misc. Mdse., tons	21	1016	560	1392	586	2007	623	969	7174	
Total Cargo, tons	4660	43788	32904	41781	54815	49954	56028	37151	321081	
Passengers.....No.	1	492	5866	6043	5307	2535	93	24	20361	

RECAPITULATION.										
Total number of vessels.....	608									
Total net tonnage, tons.....	314504									
Total freight, tons.....	321081									
Total passengers, No.....	20361									

Statistics of tugs passing through the Portage Lake Ship Canals during the year 1896.

BOUND UP.										
	May	June	July	Aug.	Sept.	Oct.	Nov.	Tot'l.		
Trips.....No.	108	128	185	181	107	149	33	891		
Net tonnage.....Tons	3413	4018	5001	4650	4750	2601	1066	26499		
Vessels.....No.	8	11	13	5	11	7	1	56		
Scows.....No.	26	12	34	25	34	32	17	180		
Rafts.....No.	8	14	12	23	23	4	1	85		
Booms.....No.	9	39	41	41	25	17	5	177		
Logs.....M.	750	250	1400	2489	3405			8294		
Lumber.....M.	55	50	55	100	541	300	740	1841		
Timber.....M.	1725	550	725	2700	1250	2215		9165		
Cordwood.....Cords			30		330	140	52	552		
Bldg. Stone.....Tons	3221	1672	3599	1778	1025	2587	792	14674		
Misc. Mdse.....Tons	115	13	113	14			115	370		

BOUND DOWN.										
	May	June	July	Aug.	Sept.	Oct.	Nov.	Tot'l.		
Trips.....No.	111	127	174	177	136	147	32	904		
Net tonnage.....Tons	3506	3992	4770	4445	4293	4026	1038	26070		
Vessels.....No.	3	8	6	4	3	3	3	27		
Scows.....No.	30	14	37	24	29	35	15	184		
Rafts.....No.	29	35	38	13	33	36	5	189		
Booms.....No.	33	5	6	17	2	4	1	68		
Logs.....M.	6300	760	10330	5481	6150	700	1100	30821		
Lumber.....M.				2000	10			11507		
Timber.....M.		9507				40		291		
Cordwood.....Cords		155	50	45				100		
Coal.....Tons	100							30		
Oil.....Bbls.	30							100		
Clay.....Tons					100			100		
Misc. Mdse.....Tons	19	47	37			1171	26	1300		

Local business of tugs in Portage Lake during the year 1896.

BOUND UP.										
	May	June	July	Aug.	Sept.	Oct.	Nov.	Tot'l.		
Trips.....No.	138	108	133	138	70	169	73	829		
Net tonnage.....Tons	1985	1771	2345	2177	1132	3725	1853	14988		
Vessels.....No.			1	2				3		
Scows.....No.	125	93	97	93	62	108	70	648		
Rafts.....No.	7	11	12	2				32		
Booms.....No.	7		17	4	2	3	2	35		
Logs.....M.	664	475	560	66				1705		
Lumber.....M.	490	400	280	370	120	378	120	2158		
Timber.....M.		650						650		
Cordwood.....Cords	80	1146	1580	1260		1350	25	5441		
Ties.....No.				900				900		
Bldg. Stone.....Tons						88		88		
Hay.....Tons						200		200		
Old Iron.....Tons						251		251		
Misc. Mdse.....Tons	2		125	11	60		340	538		

BOUND DOWN.										
	May	June	July	Aug.	Sept.	Oct.	Nov.	Tot'l.		
Trips.....No.	138	108	133	138	70	168	75	830		
Net tonnage.....Tons	1985	1771	2345	2177	1132	3714	1883	15007		
Scows.....No.	126	89	97	91	42	139	72	656		
Rafts.....No.		2	17	4		1		24		
Booms.....No.		8	12	1				21		
Logs.....M.		30	350	100		60		540		
Lumber.....M.	500	30	810	350	1320	250	200	3460		
Timber.....M.			1000	400		60		1460		
Charcoal.....Bush.	150	100000								
Cordwood.....Cords	3292	1244	495	852	2000	20000	7500	129650		
Brick.....M.						80000	1005	80000		
Hay.....Tons				50				100		
Copper.....Tons	5	4	300				400	709		
Clay.....Tons					150			150		
Poles.....Cords							280	280		
Misc. Mdse.....Tons	53	60	69	52	152	95	64	545		

Statistics of vessels passing through the Upper Canal (Portage Lake Ship Canals) during the year 1896.

BOUND UP.						
Months	Steam No.	Steam Net Tonnage	Sail No.	Sail Net Tonnage	Tot'l Cargo Net Tons	Passengers No.
April .....	10	8989	3	1472	7723	7
May.....	74	61322	44	21671	39075	390
June.....	79	56652	37	17022	26255	4678
July.....	85	52512	40	17681	23996	5771
August.....	96	70307	43	20905	27332	3811
September.....	92	78330	37	19486	34525	1800
October.....	77	67012	30	16663	36459	47
November.....	57	52985	14	8507	43391	
Totals.....	570	448109	248	123707	238756	16510



**GRAIN EXPORTS.**

A statement issued by the Bureau of Statistics at Washington, shows that the total value of the exports of breadstuffs from the United States for the month of April was \$12,109,643, being the lowest for any month in the year. It shows a gain of \$2,575,205 over the corresponding month last year, but is less by three and three-quarter million dollars than the exports for March. Wheat exports fell off to only 2,547,097 bushels, flour to 828,965 barrels, while corn, still at a heavy total, 18,838,377 bushels, did not reach the maximum of March exports by almost six million bushels. There was a decrease in barley, oats and cornmeal, although each of these lines show a large increase for the ten months ended April 30th. Gains continued in oatmeal and rye.

**THE GREAT J. J. HILL.**

A Pacific Coast capitalist, commenting on the Northern Pacific-Great Northern deal, says. Mr. Hill's great success as a manager lies in the fact that he stops expensive leaks. The western end of Great Northern contains leaks of such a nature that they cannot be stopped by ordinary management. Mr. Hill realizes that Great Northern must depend to a considerable extent on the development of Washington, and it was necessary for him either to acquire additional facilities by building and purchase or to make a close alliance with the Northern Pacific. The latter method was the simplest, easiest and most advantageous from every point of view. Great Northern will get now deep water connections by Northern Pacific and will secure additional steamer facilities. The Northern Pacific Steamship Line is doing a large business, and so are the Canadian Pacific steamers. Great Northern will also be benefited in its coal supply. There are at present rate differences which sometime operate to a disadvantage. This is almost certain to be corrected. Mr. Hill has always been a builder rather than a destroyer, and it will be contrary to his past methods if he does not pursue a broad policy so far as his influence is felt in Northern Pacific.

**SAILING VERSUS RAILROADS.**

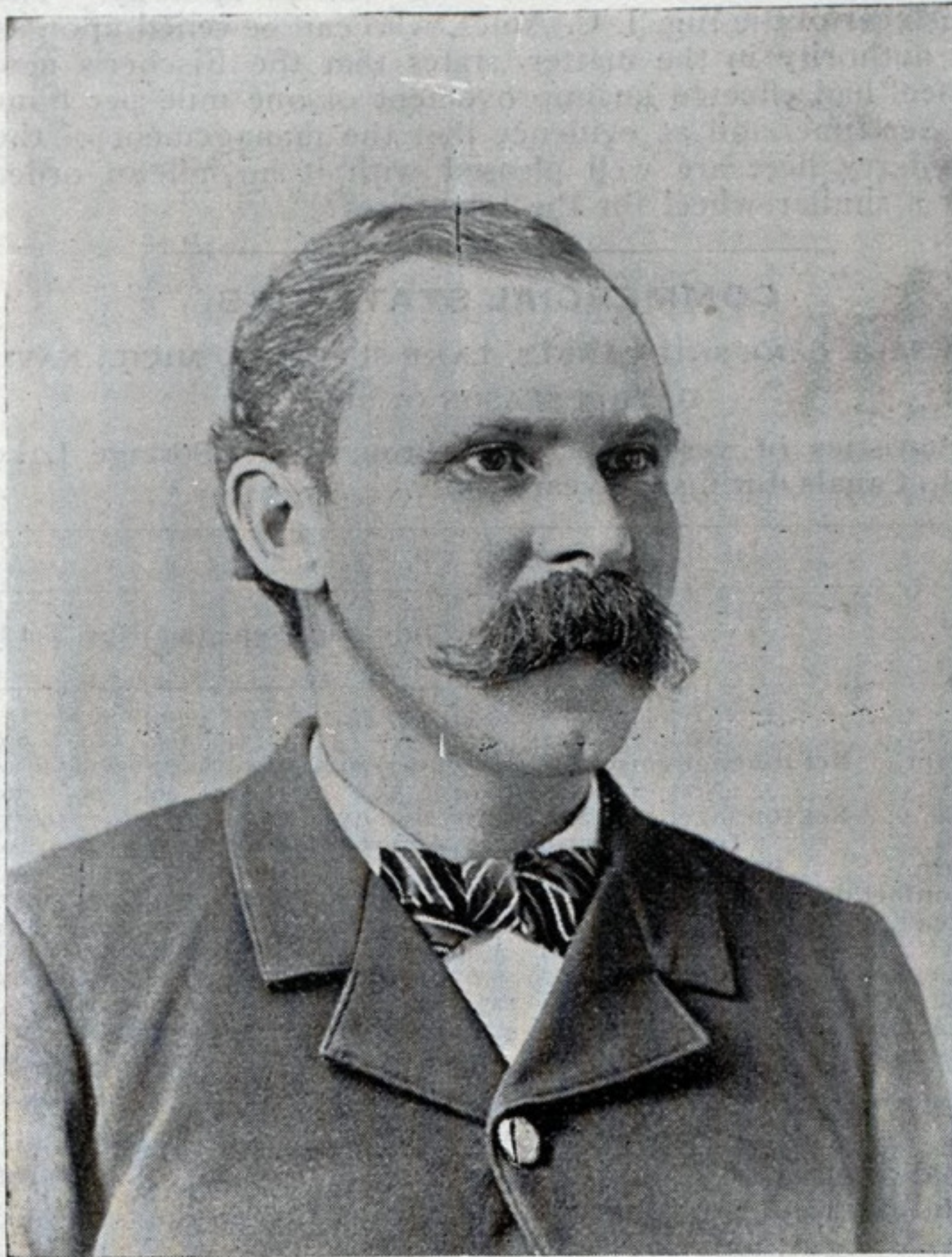
At a recent meeting in Chicago of representatives of the transcontinental railway lines it was decided to allow the lines to publish commodity rates from Pacific Coast terminal points to the Eastern seaboard, the minimum to be 75 cents per 100 pounds. The officials of the Pacific Coast Lines believed by the establishment of this arrangement a large portion of the tonnage that is being carried by sailing ships around Cape Horn may be diverted to the railways. The same rule is to be applied to Asiatic freight. Regarding this the Oregonian says. While there is no doubt that the business of carrying fast freight, such as tea, silk, etc., across the Pacific to Portland, San Francisco and northern ports, will increase wonderfully in the next few years, yet it is difficult to understand how the railroads expect to take any of the business still held by the sailing vessel and the tramp steamer from them at the rates mentioned. Seventy-five cents per hundred is \$15 per ton, and the lowest rate from Pacific Coast terminals to the Orient is \$3 per ton, so that New York freight would cost \$18, landed at Asiatic ports, compared with about \$7 per ton, which is now being paid sailing vessels and tramp steamers. The same conditions prevail on freight from the Atlantic to Pacific Coast ports. The ships now plying around the Horn are carrying freight for \$5.50 to \$6.50 per ton. An American ship was chartered in New York a few days ago to carry 80,000 cases of coal oil to Shanghai for \$18,400 and the German steamer Barbek is to receive \$17,000 for the same sized cargo. The cost of transporting this by rail across the continent, and steamer across the Pacific at the minimum rates named by the railroads would be over \$50,000 for each cargo. The Almighty has supplied marine craft with trackage facilities on which equipment and repair cost nothing, and until railroads can discover some method for offsetting this tremendous advantage of the ocean carriers they will be unable to compete for much except fast and perishable freight.

W. W. Bates is a candidate for the position of Commissioner of Navigation, an office which he filled during

a former Republican administration. Capt. Bates is a prolific writer, a statistician and author of the "Merchant Marine," besides other valuable writings and contributions on maritime subjects.

**MODEL LIFE SAVING STATIONS.**

The station at Thunder Bay Island, Lake Huron, has been noted for some time past as being a model of exactitude and general neatness in its up keep. To further en-

**CAPT. J. D. PERSONS.**

Keeper Thunder Bay Island Life Saving Station.

hance the appearance of the life saving station recent improvements are now being carried out, and we would not be at all surprised to learn that in the near future Thunder Bay Island will have the most eye-pleasing locality on record.

**CAPT. PERSONS.**

Wife of Keeper Thunder Bay Island Life Saving Station.

The keeper of the station, Capt. John D. Persons, has been eighteen years in the service. Born in 1851 he became assistant to his father as light keeper at Thunder Bay Island, appointed keeper of the station in 1877, and has served in that life-saving capacity with honor to himself and credit to the service, ever since.

Mrs. Persons, whose photograph we herewith reproduce, has the distinction of being the only lady on Lake Huron who holds a master's license, or certificate. She was educated at Oberlin, near Cleveland, and removed to Alpena, Mich., to teach music, in 1872. There she met and married Capt. Persons, who was shortly after appointed keeper of the Thunder Bay Island life saving station. It is small wonder that with such an excellent couple in charge of Thunder Bay Island station should take on appearances second to none in the service.

**SUNK BY COLLISION.**

The Canadian steamer Louis Shickluna was sent to the bottom of Lake Erie off Long Point Monday night by collision with the steamer Tecumseh. The crew had just time to get into the boats, and although quite a sea was running managed to keep afloat until daylight, Tuesday morning. They were picked up by the Tecumseh, which had been searching for them all night. Capt. Taylor, who was in command of the lost steamer, says the Shickluna was bound for Cleveland without cargo. When about three miles off Long Point the Tecumseh, bound down from Lake Superior, collided with the Shickluna, striking her abreast of the boiler room. It was seen at once that the steamer was foundering, and the crew had just time to launch the lifeboat and get away from her before she went down. From the time of the collision until morning the crew drifted around the lake. When morning came they sighted the Tecumseh, which had remained near the scene of the disaster, and all were taken aboard. The Shickluna is in comparatively deep water, and is a total loss. She was built in 1870 and measured 445 tons. Her value was about \$10,000. The Shickluna was the property of Sylvester Bros., of Toronto, and has been engaged in the upper lake trade for many years.

**U. S. BRANCH HYDROGRAPHIC OFFICES.**

At the branch of the U. S. Hydrographic Office, located in Chicago and Cleveland, for the benefit of mariners without regard to nationality and free of expense. Navigators are cordially invited to visit the offices, where complete sets of charts and sailing directions of the Lakes are kept on hand, for comparison and reference, and the latest information can always be obtained regarding lights, dangers to navigation and all matters of interest to commerce. The time ball on top of the building is hoisted about ten minutes before noon and is dropped at noon, by telegraphic signal received each day from the U. S. Naval Observatory. A notice, stating whether the time ball was dropped on time, or giving the error, if any, is published the same day by the afternoon papers, and by the morning papers the following day.

**EXACT SCIENTIFIC OBSERVATIONS.**

Prof. G. H. McLeod, superintendent of McGill college observatory, has reported to the department of marine that the final value of the longitude of Montreal has been determined. He says: "During the past summer the astronomer royal visited Montreal on his way to Japan and having brought with him the completed deductions of the Montreal-Greenwich longitude observations, I am able to announce the final of the longitude of Montreal (the middle point between the two piers of the transit instruments at this observatory) as determined from the observations of Prof. H. H. Turner and myself, as 4 hours, 54 minutes, 8 seconds, which is slightly in excess of the old value obtained from United States determinations. The difference of longitude between Albany and Montreal has been determined, thus completing the change of longitude determinations between Washington, Cambridge and Montreal. The difference of longitude between Montreal and Cambridge is 9 minutes and 47 seconds."

The slight excess in the longitude of Montreal found as above, amounting to .105, will make an important difference in the position of the city, moving it about eight feet. Whether the city is moved eight feet to the east or to the west is not definitely determined, and is now being worked out at the department.

**NEW REVENUE CUTTERS.**

The steel for two large gun boats is now being made in Pittsburg. The boats are to be 205 feet long, will have a speed of 18 knots an hour and will ply on the lakes. C. M. Green of the United States revenue cutter service, has been in Pittsburg for a few days to inspect material for the new boats which are being made at the Carnegie Upper and Lower Union and Homestead mills. The Pittsburg Forge & Iron Company and the Carbon Steel Works, are also furnishing a large part of the steel, the former the forgings for the machinery and the latter the ingots. The boats will have triple expansion engines and four boilers each, to be built by the Globe Iron Works Co., of Cleveland.



## PRACTICAL METHOD FOR FINDING COMPASS ERRORS.

ARRANGED FOR MASTERS AND PILOTS ON THE GREAT LAKES

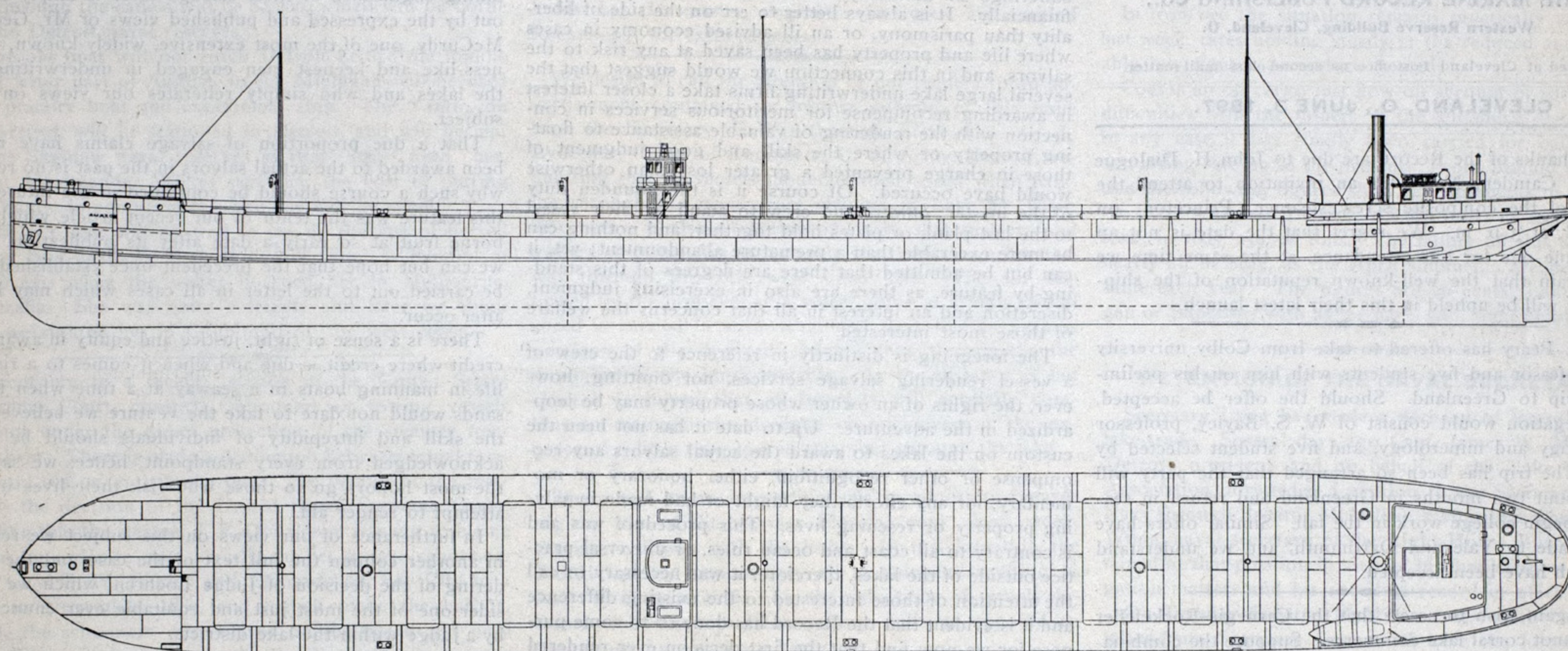
BY JOHN ROSS LATE MASTER LIGHT-HOUSE TENDER 9TH. DISTRICT.

(Copyrighted 1897, all rights reserved.)

### CHAPTER 2.

#### CARE OF COMPASSES.

Never tamper with the glass top of a liquid compass, and do not leave the glass top exposed to the direct rays of the sun; the liquid in the bowl expands on being heated and may crack the glass.\* If a bubble forms under the glass it may be removed by turning the bowl over and making good the deficiency of spirits through the filling hole, which is closed by a washer and screw cap. When unshipping a compass from its binnacle, if the compass has more than one lubber's mark, be careful to note which mark was forward, and, when putting the compass back in the binnacle, put it with the same lubber's mark in the same position; this will prevent any error in case the lubber's marks are not all correctly placed. There seems to be no satisfactory reason why any compass should have more than one lubber's mark. The compass bowl, when it is in the binnacle, should hang perfectly level; if it does not do so it may be made to



STEEL TOW BARGE AMAZON.

Built by the Chicago Ship Building Co. for James Corrigan, Cleveland.

hang level by winding a little lead wire around the gimbal rings; before doing this see that the straps over the bearings of the gimbals do not bind. If the card of a dry compass is not balanced, a drop or two of hot sealing wax in the proper place on the under side of the card will remedy the evil. When a liquid compass is packed for transportation, the bowl should be taken from the gimbals and placed in a box face down† and excelsior packed tightly all around it; place the gimbals in the box with the bowl, but pack them so they will not touch the bowl. If possible transport the box in a position so that the face of the compass will be down. When packing a dry compass take off the glass face and lift out the card; place a piece of cork on the pivot and put on the face again. The card should be kept straight, and both bowl and card should be packed in excelsior in a box. Care should be taken to keep the compass, either while being transported or stored, away from magnets or large masses of magnetized iron, to prevent the compass needles from losing magnetism. The compass should never be placed where it is liable to be heated to 300 degrees F.\*\*

\*In the liquid compasses of late manufacture the compass bowls are made with an expansion chamber to permit expansion of the liquid.

†Compasses packed for transportation by Ritchie are invariably face down.

\*\*Extreme heat (over 300 degrees F.) has the effect of decreasing the magnetism in magnets,

#### MAGNETISM.

The earth is a magnet whose two magnetic poles are distinct from the geographical poles. The magnetic pole of the northern hemisphere (known as the magnetic north) is in British North America N. N. W. from Hudson Bay. The geographical poles are each represented by a point, while the magnetic poles include an area each of about 50 square miles of the earth's surface.

Hard steel rods, such as magnets and compass needles are made of, when properly magnetized, are called permanent magnets.

In the construction of iron and steel merchant vessels, the wrought iron and steel in the vessel becomes magnetized through hammering, shocks, bending, and strains. The resulting magnetism is known as sub-permanent; this has an effect on the compass similar to that of a magnet; it changes or varies with the lapse of time, but is never entirely lost.

Soft iron becomes instantly magnetized by being placed within the influence of any magnetic force but has no power of retaining magnetism; its magnetism is transient and changes according to its position and the angle it makes with the inducing magnetic force. The magnetism of soft iron is known as induced magnetism.

When a vessel is on the stocks, or has been lying for a period on one heading, she acquires a certain amount of magnetism which is, strictly speaking, neither sub-permanent nor induced, but possesses some qualities of both.

in ships is to introduce another and equal magnetic force acting in an opposite direction.

Local magnetism is so seldom noticeable on board ship, when not close to the land, that it can hardly be considered. The magnetism of the earth and of the ship more nearly concern the navigator for they enter into every course he steers.

The ship's magnetism, properly speaking, consists of two recognized quantities—sub-permanent and induced magnetism.

#### THE COMPASS ADJUSTER.

The magnetism in the vessel affects the compass needle to a less or greater degree as the compass is well or badly placed. In some iron and steel steamers the compass needle is affected so as to make it practically useless on some headings. To neutralize or compensate\* the effect of the vessel's magnetism on the compass, magnets are placed to neutralize the sub-permanent magnetism (which causes semi-circular deviation) and globes, cylinders, or chains are placed to neutralize the induced magnetism in horizontal soft iron, (which causes quadrantal deviation). The magnets and globes (cylinders or chain) are placed at such distances as to affect the compass with a force equal to the vessel's magnetism but always in the opposite direction. Large and perplexing deviations are sometimes caused by the magnetism in vertical soft iron near the compass; this must be compensated by the Flinder's bar.

This magnetism remains for a time after the cause which produced it is removed but disappears rapidly after the vessel has been placed on an opposite heading. For the purpose of distinguishing this it might be called retentive magnetism.

Local magnetism only applies to magnetic masses, external to the ship, other than the earth's magnetic poles; it is only effective when close to the compass. When local magnetic disturbance is noted it is due to large masses of iron or magnetic minerals close to or under the observer. It is currently believed there are places in Lake Superior where local magnetism affects the compass needle.

It has sometimes been supposed that fogs and peculiar states of the atmosphere cause magnetic disturbance and affect the compass needle. There is, however, no ground for this supposition. Electric storms are liable to disturb the compass needle and lightning has the occasional effect of rendering the needle useless; the aurora borealis also affects the compass needle, but there is no authority for stating that its effect is felt on the Great Lakes.

Attempts have been made to intercept or screen the action of ship's magnetism in causing deviation of the compass; no effective magnetic screen has yet been produced which is not destructive of the usefulness of the compass for the purpose of navigation. The only way at present known to destroy or neutralize the magnetic force

\*Compensate is undoubtedly a better word than adjust, as it expresses the operation more correctly. The magnets, etc., are placed to compensate (counter-balance) the effect of the vessel's magnetism on the compass needle.

The above compensations of the compass suffices when the vessel is on an even keel, but when the vessel is heeled a third source of error, which will give much uneasiness and trouble if neglected, will be introduced; this is known as the heeling error and should be compensated for. This can be done by methods with which every adjuster should be familiar and without the delay caused by heeling the vessel.

If the iron, both hard and soft, were equally distributed around the compass the work of the adjuster would be comparatively easy; but such a condition rarely occurs. The practice necessary to compensate compasses properly under all conditions cannot be acquired by a ship-master whose experience is limited to the new vessels he commands and whose duty to his owners calls for as many trips as possible during the season of navigation. Many books contain the theory of compass compensation; but every one understanding the theory cannot compensate compasses. It pays to employ the best adjuster that can be obtained, one who has had long experience in the business. Don't employ any Tom, Dick or Harry, who tells you he can do the work and tries to make a favorable

CONTINUED ON PAGE 11.





ESTABLISHED 1878.

Published Every Thursday by

THE MARINE RECORD PUBLISHING CO.,

Incorporated.

GEO. L. SMITH, President.

C. E. RUSKIN,	-	-	-	Manager.
CAPT. JOHN SWAINSON,	-	-	-	Editor.
THOS. WILLIAMS, Chicago,	-	-	-	Associate.

CLEVELAND,	CHICAGO.
Western Reserve Building.	Royal Insurance Building.

## SUBSCRIPTION.

One Copy, one year, postage paid,	-	-	\$2.00
One Copy, one year, to foreign countries,	-	-	\$3.00
Invariably in advance.			

## ADVERTISING.

Rates given on application.

All communications should be addressed to the Cleveland office.

THE MARINE RECORD PUBLISHING CO.,

Western Reserve Building, Cleveland, O.

Entered at Cleveland Postoffice as second-class mail matter.

CLEVELAND, O., JUNE 3, 1897.

The thanks of the Record are due to John H. Dialogue & Son, Camden, N. J., for an invitation to attend the launch of the composite screw steamer Princeton on June 3d, at 3 p. m. We regret that the date is not an opportune one for our attendance, at the same time we are certain that the well-known reputation of the ship-builders will be upheld in this their latest launch.

Lieut. Peary has offered to take from Colby university one professor and five students with him on his preliminary trip to Greenland. Should the offer be accepted, the delegation would consist of W. S. Bayley, professor of geology and mineralogy, and five student selected by him. The trip has been so arranged that the party will have about two months in Greenland and return in season to begin college work in the fall. Similar offers have been made to Yale and Dartmouth, and we understand that both have been accepted.

We again wish to assert that the Carnegie-Rockefeller deal cannot corral lake commerce. Suppose the combination carries two million tons of ore, that is after all only a fraction of the volume of lake transportation and will be a still lower quantity as the season and other seasons come in. History repeats itself, they tried to do this same thing a century ago away back East, but the general trade could not be frozen out and all interests catch a slant of prosperity time and again, so that enough money is made to make vessel owning a fairly prosperous business.

It is now reported that an agreement will probably be reached between the authorities of the navy department and the Pennsylvania manufacturers in regard to the price of armor plate. Messrs. Schwab and Linderman, of the Carnegie and Bethlehem companies, have for several days been holding daily conferences with the secretary of the navy, and with Senators and Representatives, in relation to the matter, and an agreement has practically been reached that an offer of \$400 a ton will be made and accepted.

The jury in the case of Capt. Edward J. Reed, who has been on trial on the United States circuit court on the charge of having failed to provide proper food for the crew of the ship L. F. Oakes, of which he was master, on the voyage from Hong Kong to New York, brought in a verdict of "not guilty." The Oakes arrived at New York on March 23 last, 238 days from Hong Kong. Six of the crew, including the chief officer, had died on the passage, and 12 of the crew were removed to the marine hospital suffering from scurvy.

## SALVAGE SERVICES.

Now let us see what influence the Marine Record has in matters maritime on the great lakes.

On May 20th our leading editorial was on "Salvage Services" wherein we pointed out that the awards should be more equitably distributed. Quoting an excerpt from our editorial we said as follows:

"In most of the recent decisions the salvors are only awarded a sum sufficient to renumerate them for the services rendered, or, in other words, ordinary services are paid for as such, and if there is extraordinary and imminent risks proved during the rendition of these services the claims are met and settled generously. Under these laws righteous and equitable salvage services will always be obtainable and where there is no agreement made between the salvors and the principals of the property interested the courts will decide all claims in a maturing the George G. Hadley at an expense of \$12 per day, ter of fact, business-like and professional way. They would also be well advised if in the new system judges were moved to consider that individual skill and exertion ought to be more distinctly acknowledged when the detailed awards were made to the parties claiming salvage, so that it could be said, as the marine puts it, "that the bullets fly thickest where the most of the prize money goes," yet in no case is it correct to award compensation collectively when a result has been obtained individually, and the same rule holds good reversed. Certainly we believe that a generous policy ought to be maintained, and that adequate remuneration should in all cases be tendered those who risk life and property in any emergency, whether their ultimate object may be to alleviate the sufferings of humanity, or to increase their resources financially. It is always better to err on the side of liberality than parsimony, or an ill advised economy in cases where life and property has been saved at any risk to the salvors, and in this connection we would suggest that the several large lake underwriting firms take a closer interest in awarding recompense for meritorious services in connection with the rendering of valuable assistance to floating property or where the skill and good judgment of those in charge prevented a greater loss than otherwise would have occurred. Of course it is the bounden duty of the master, officers and crew to stand by their vessel to the last plank or plates hold together, and nothing can be more execrable than a premature abandonment; yet, it can but be admitted that there are degrees of this standing-by feature, as there are also in exercising judgment, discretion and an interest in all that concerns the welfare of those most interested."

The foregoing is distinctly in reference to the crew of a vessel rendering salvage services, not omitting, however, the rights of an owner whose property may be jeopardized in the adventure. Up to date it has not been the custom on the lakes to award the actual salvors any recompense or other recognition, either honorary or momentary, for any efforts they might or had made in salvaging property or rescuing lives. This procedure was and is contrary to all coast and ocean rules, or universal practice outside of the lakes, therefore, it was necessary to call the attention of those interested to the existing difference and it is evident that the Record has done so to some purpose for we now find that the first decision ever rendered at a lake port in favor of the master and crew was given seven days after our editorial which covered the entire lake district and those connected with maritime pursuits who had the article placed in their hands.

The final result of a salvage case recently tried has been widely telegraphed to all lake papers so that those who run may read. Let us take the special despatch verbatim as follows:

"Duluth, Minn., May 27.—For the first time in the history of the lakes crews of vessels rendering assistance to disabled craft in times of storm are to receive a recompense for the perils incurred in the saving of life and property. Today Judge Lochren in the United States court, sitting in admiralty, awarded the owners and crew of the Arabia \$5,000 for saving the steamer George G. Hadley from being wrecked in the storm on Lake Superior on September 8, 1895. The owners of the Arabia, the New York Central Line, are to receive seven-tenths of that amount, the captain gets one-twentieth, or \$250, and the crew receive the remainder, or \$1,250.

"The original claim was \$12,500. At the time it was made there was widespread comment among marine men over the fact that a claim was made for salvage by the master and crew of the saving steamer. It was charged that the Arabia's captain, who was a wise man in his day and generation, had instructed the attorneys, without orders from his company, to draw the libel so as to include himself and crew in the proportion awarded by Judge Lochren today. It was rumored at the time that the New York Central officials were so provoked at the captain for claiming a part of the salvage that his discharge was ordered, but it was never carried out.

"The services for which the Arabia's crew will receive this nice sum was performed in a heavy September gale. The Hadley, with a cargo of grain, had lost her rudder in the storm. She was absolutely helpless when the

Arabia, at much risk, succeeded in getting a tow-line to her and took her back to Duluth in safety with her cargo. The Hadley was at once libeled on the claim of the Arabia and the crew for salvage. The case has been warmly contested by the underwriters who had the insurance on the Hadley and the owners of the Arabia. It is thought certain that the case will be appealed.

Chicago, May 27.—"I consider it a righteous verdict," George L. McCurdy, the marine underwriter, said tonight when informed of the award at Duluth. "The master and crew of a vessel which goes out of her way in time of storm to save others are certainly entitled to pay for the risks they incur. Generally the vessel they are sailing is fully insured, and the owners are put to no pecuniary risk. It is the master and crew who risk their lives. In the interests of humanity, they should receive a recompense. I am glad that the courts have given a crew on the lakes a share of the salvage. I say this solely as a matter of justice."

Salvage claims on the lakes during the season of navigation amount to a very large figure, but heretofore the owners have reaped the full benefit and frequently crews have not even received their thanks, the saving of property being considered part of their regular duty. The legal aspects of the Duluth decision will receive widespread attention among underwriters and vessel owners. The rights of masters and crews to file libel claims where they are ignored in the original bill is said to be an open question, but it is certain to be tested before the end of the present season.

Our previous allusion to the large underwriting firms taking cognizance of these salvage cases is amply borne out by the expressed and published views of Mr. Geo. L. McCurdy, one of the most extensive, widely-known, business-like and keenest men engaged in underwriting on the lakes and who simply reiterates our views on this subject.

That a due proportion of salvage claims have never been awarded to the actual salvors in the past is no reason why such a course should be continued in the future and this feature was the tenor of our recent article which has borne fruit at so early a date after its publication, and, we can but hope that the precedent once established will be carried out to the letter in all cases which may hereafter occur.

There is a sense of right, justice and equity in awarding credit where credit is due and when it comes to a risk of life in manning boats in a seaway at a time when thousands would not dare to take the venture we believe that the skill and intrepidity of individuals should be fully acknowledged from every standpoint, hence, we say let the most honors go to those who risk their lives in the attempt to render aid.

In furtherance of our views on this subject we reprint in another column the full text of the case and the rendering of the decision of Judge Lochren, which we consider one of the most just and equitable ever enunciated by a judge within the lake districts.

## NAVAL RESERVES.

After a number of years agitating the subject the Record is pleased to announce that Ohio and Michigan have drill ships for the newly organized Corps of Volunteers. Cleveland has secured through purchase from the Treasury Department the late revenue cutter Andy Johnson with her full equipment and the Navy Department at Washington has practically decided to donate the old U. S. S. Yantic to the Michigan naval reserves. The old wooden craft is now en route home. She will be overhauled at the Brooklyn navy yard, and then sent to Detroit by way of the St. Lawrence River and canal route, and she will cost the naval reserves about \$1,200, on account of bringing her through the Welland Canal.

As Detroit is headquarters for the Michigan naval reserves, and as the Detroit reserves inaugurated the plan for securing the vessel, the Yantic will be stationed at that port and will be loaned to the Saginaw division whenever it wants to go out for a cruise. The Detroit naval reserves corps will have numerous cruises on the boat, and drill aboard of her in good weather. During the winter months the Yantic will be safely moored and she will be disarmed before entering the great lakes.

The Yantic will not reach Detroit until the latter part of August, so the naval reserves will cruise this year aboard the Michigan. It has been proposed that the reserves live aboard the Michigan during the entire week of practice, go up the lakes stopping in a harbor each night, as far as Marquette.



The crew of the Michigan will be put ashore, as was done last year, and the naval reserves will be the sailors. They will do all the work but that of the stokers. Prof. Cooley, of the U. of M., will be chief engineer. His assistants will be drawn from the ranks of the reserves. The wardroom and petty officers will remain with the Michigan to instruct the reserves in their duties aboard ship.

Quite an awkward squad will go out this year, as about 50 new members have been recently enlisted in the reserves.

Lieutenant-Commander Wilkes says the statement published a few weeks ago that it would cost \$40,000 to repair the vessel and put her in a serviceable condition, he thinks, was made only for effect; anyhow, whatever small expense there may be in the line of repairs, will be paid by the government. He also says there is nothing in the report that the process of lightening the boat so as to enable her to pass through the Welland Canal locks would do the hull serious injury. The Yantic is an historical old hull.

#### A NAVAL RESERVE SHIP.

And now it appears that it has been decided by the navy department that the Yantic will come to the lakes for the use of the naval reserves. She is now in the West Indies, en route home. At the Brooklyn navy yard she will be overhauled and sent to fresh water by way of the St. Lawrence and Welland Canals; the cost of bringing her through the canals will be \$1,200, which will be borne by the Detroit naval reserves.

The old boat will not reach Detroit before the middle of or latter part of August, so the Michigan will be used as a practice boat and experiment ship. The Yantic, on her arrival, will be stationed in Detroit, and will be lent to the Saginaw naval reserves as they may need her. Lieut. Commander Wilkes says that the cost of putting the Yantic in condition for lake use will be small.

The old boat will do well to use up the last of herself in the lake business, even as a drill ship. A handful of years ago when the writer boarded her in Melbourne, Australia. She was quite a frigate and later we think that we sighted her in Coquimbo on the west coast.

According to a recent decision of the United States Supreme Court, consort, schooners or towing vessels are not under the direct protection of the steamer towing them. There is made a distinction between actual towing and season or trip charters. The upshot of the matter is the decision of the United States Supreme Court, holding that the steamer J. P. Donaldson was not to blame when, in order to save herself, she let go the schooners Bay City, G. W. Wesley and Eldorado off Bay City in a gale in November, 1880, and herself made the harbor, while the schooners were driven on the beach and only released at great expense. As the dispatches have indicated, the case of the owners of the schooners against the owners of the steamer has been fought all these years, was once decided for the steamer, then partly against her and finally wholly for the steamer. Not only in court, but out of it have attempts been made to settle by the owners of the steamer. At one time Capt. J. W. Westcott, of Detroit, was empowered to offer the owners of the Eldorado \$2,000, and he did so, but it was refused. Others offered the owners of the other schooners various amounts, but all were declined. The steamer S. S. Wilhelm dropped the schooners Mears and Midnight off Presque Isle harbor, Lake Huron, in a heavy gale within the last seven years. Both schooners were completely wrecked, and the steamer saved herself. The circumstances were much like those in the foregoing case. The suit has been tried and decided against the steamer, but it was carried up, and is still pending. It will now have only to be certified to the Supreme Court and the Wilhelm is likely to win, for a precedent has been established. It is not known that others are pending, but if they are there can be but one issue for them. Scores of cases have been settled by the payment of compromise sums by the steamer. It appears that the foregoing is different to actual towing services.

It has been rumored and furthermore reported in several lake dailies that the Western Transit Co., of Buffalo, were opposed to the master and crew of the Arabia receiving any portion of the salvage claim in connection with the Hadley rescue. Manager Douglass, of the line,

says the company had never objected to the course of Capt. Murray, as it was not understood that he had ever made any demands for salvage money. "We don't care anything about it," said the manager. "We think that the crew is entitled to some of the money and certainly shall not object to the award, at least on that ground." The manager also spoke of the practice of including the crew in the salvage awards in ocean cases, but added that there was one point that ought to be taken into account always. The effort to save a disabled vessel endangered the property of the employers of the crew. In the case of the saving of the Hadley by the Arabia any damage to the Arabia would have fallen directly on the company, as she was not insured. For this reason the amount given to the crew is not as large as it might be otherwise, because they are not able to make good any such loss. Mr. Douglass mentioned the rulings of Judge Brown, of New York, in such cases and said that he always kept this point in view when making salvage awards. This ought not to prevent any reasonable effort to save imperiled life or property and the manager did not appear to think that the decision would make any particular difference with the present disposition of captain and crew to save disabled vessels whenever they thought it possible to do so. In this view of the situation we think that the new manager is about right. When extraordinary efforts are made to save life and property due credit should always be given to the actual source or service. The Record holds that the master, engineers and crew are entitled to extra pay for extra services.

We desire to call the attention of our readers to an advertisement contained in another column of this issue from the Secretary of War through Lieut.-Col. G. J. Lydecker, Corps of Engineers, U. S. Army, Detroit, requesting that all vessels moderate their speed when passing through the twenty-foot channel in Lake St. Clair. The notice is also a caution and asks that masters and owners co-operate in maintaining the deep channel waterway through this otherwise shoal lake. The silt disturbed by the propeller of a vessel going at a high rate of speed is carried in suspension and deposited in various portions of the dredged channel thus threatening the durability of the improvements. As the distance is but short it is hoped that all interests will cordially combine to maintain the dredged channel even at the expense of a little time lost in steaming through the lake.

There will be an interesting suit in admiralty regarding the loss of the steamer Florida, sunk last week, through collision with the Roby. In this litigation the Florida or her owners have all to gain and nothing to lose. It is remarkable how the valuations of vessels decrease when appraised for damage suits as opposed to the ratings for insurance purposes.

#### VESSELS CLASSED.

The Record of American and Foreign Shipping classed during the past week the vessels Hattie H. Barbour, Jennie F. Willey, Mary P. Hall and the Thomas G. Smith also the Danish bark Sophia.

#### A LARGE CONTRACT.

The firm of George H. Breyman & Bros., of Toledo, O., has completed ten miles in length and eight hundred feet wide of the section of the twenty-foot channel at Grosse Point. This was the largest contract ever taken by a single dredge firm on the chain of lakes.

#### COLLISION CASE SETTLED.

An important decision in a collision case which is of much interest locally was rendered by Judge Grosscup at Chicago, Tuesday. The schooner Sunrise was sunk in a fog on Lake Michigan, May 21, 1896, by the whaleback barge No. 133 in tow of the steamer W. H. Gratwick. The Gratwick and the barge together were libeled for \$8,000. The case was tried in the northern district of Illinois and Judge Grosscup held the Gratwick not at fault and condemned the Sunrise for not changing her course and the whaleback for not sounding her bell or for not having a proper one. Harvey D. Goulder represented the steamer Gratwick, which is owned by Capt. John Mitchell and others. H. A. Kelley looked after the interests of the American Steel Barge Co. and C. E. Kremer, of Chicago, was the attorney for the owners of the lost schooner.

#### LAKE FREIGHT REPORT.

There is but little change to report from our last week's synopsis of the conditions existing in the lake freight market. It appears that about 90 per cent of all lake tonnage is hustling for charters and this, too, at rates which in some cases will not pay ordinary expenses.

The receipts and shipments of grain from the port of Duluth for the month of May far exceed what was predicted at the opening of the month. The receipts amounted to 3,828,712 bushels and the shipments to 6,268,731 bushels, as compared with 4,048,842 bushels received and 7,955,277 bushels shipped for the corresponding month last year. The receipts were almost as large and the shipments are not so far behind last year's record for May, when the amount of wheat sent forward was considered phenomenal. Total receipts of all kinds of grain during May were as follows: Wheat, 3,828,712 bushels; oats, 1,131,043 bushels; corn, 1,239 bushels; barley, 318,953 bushels; rye, 157,187 bushels; flax, 451,569 bushels. Shipped. Wheat, 6,268,731 bushels; corn, 43,969 bushels; oats, 2,288,490 bushels; barley, 590,441 bushels; rye, 400,047 bushels; flax, 1,150,430 bushels. Grain in store: Wheat 3,045,200 bushels; barley, 263,668 bushels; flax, 1,488,642 bushels; corn, 8,932 bushels; oats, 602,699 bushels; rye, 348,383 bushels.

At Chicago the Buffalo corn rate was forced up to 1½ cents on Wednesday, but there is no stability in the market and it is just as likely to drop back ½ of a cent within a day or two.

In iron ore the situation remains practically as it was last week, rates holding steady at the reduced and miserably low figures heretofore quoted.

Coal is an off cargo just now on account of some labor difficulties with the miners in the Pittsburg district and in any case it has simply been carried for ballast and at a losing rate up to the present. From Buffalo we learn that the following figures show the shipments to date for the three seasons. In 1897, 198,850 tons; in 1896, 299,334 tons; in 1895, 259,788 tons. The falling off this season is nearly all in May, as the April shipments are nearly the same each year. The figures are 20 cents, Lake Michigan or Superior, with as we have said, light chartering.

#### RETENTION OF THE NAVAL SECRETARY.

Secretary Long has made a decision of interest to the lake trade. Several days ago Capt. James W. Millen, of Detroit, president, and on behalf of the Lake Carriers' Association, forwarded a petition to the Secretary of the Navy through Senator McMillan, asking that Commander Wilde, naval secretary of the Light-House Board, be retained in that position in view of his familiarity with navigation matters and his excellent record in office.

On Tuesday Senator McMillan received the following letter from Secretary Long: "I have the honor to acknowledge the receipt of your letter of the 27th instant, inclosing a communication from Capt. James W. Millen, of Detroit, and requesting the retention of Commander George F. F. Wilde, U. S. N., as naval secretary of the Light-House Board, and to state that the department has decided that he shall remain in his present position."

#### NOTES.

A good story is told of an Irishman who sought employment as a sub-marine diver, but after ten minutes of his first experience below demanded to be taken up and released on the ground that he wouldn't work on a job where he couldn't spit on his hands.

At the end of the year 1894 there were only twelve Japanese steamers of upwards of 3,000 tons, twenty-nine of between 2,000 and 3,000 and forty-five of between 1,000 and 2,000 tons. Now there are ten steamers of more than 5,000 tons, two of between 4,000 and 5,000, thirteen of between 3,000 and 4,000, fourteen of between 2,000 and 3,000, and sixty of between 1,000 and 2,000 tons.

Mrs. Luella Stimpson, marine reporter at the Strait of Mackinac nobly and ably took up the work of reporting all vessel passages after she lost her husband through the capsizing of his boat while on duty. There has been another reporting agency started at Mackinac but Mrs. Stimpson still holds on to a good many of the old patrons of her late husband. Any woman who so cheerily takes up the cudgels in the fight for the battle of life and maintenance is worthy of the most liberal support, when equal service is rendered.



**H. C. BURRELL,**

Marine Reporter.

We can Supply Men and Officers to Passing Vessels

BOAT ON THE RIVER  
AT ALL HOURS,  
NIGHT OR DAY.Signal: One long  
two short.Our boats are  
white. We'll treat  
you white and deal  
with you

ON THE SQUARE.

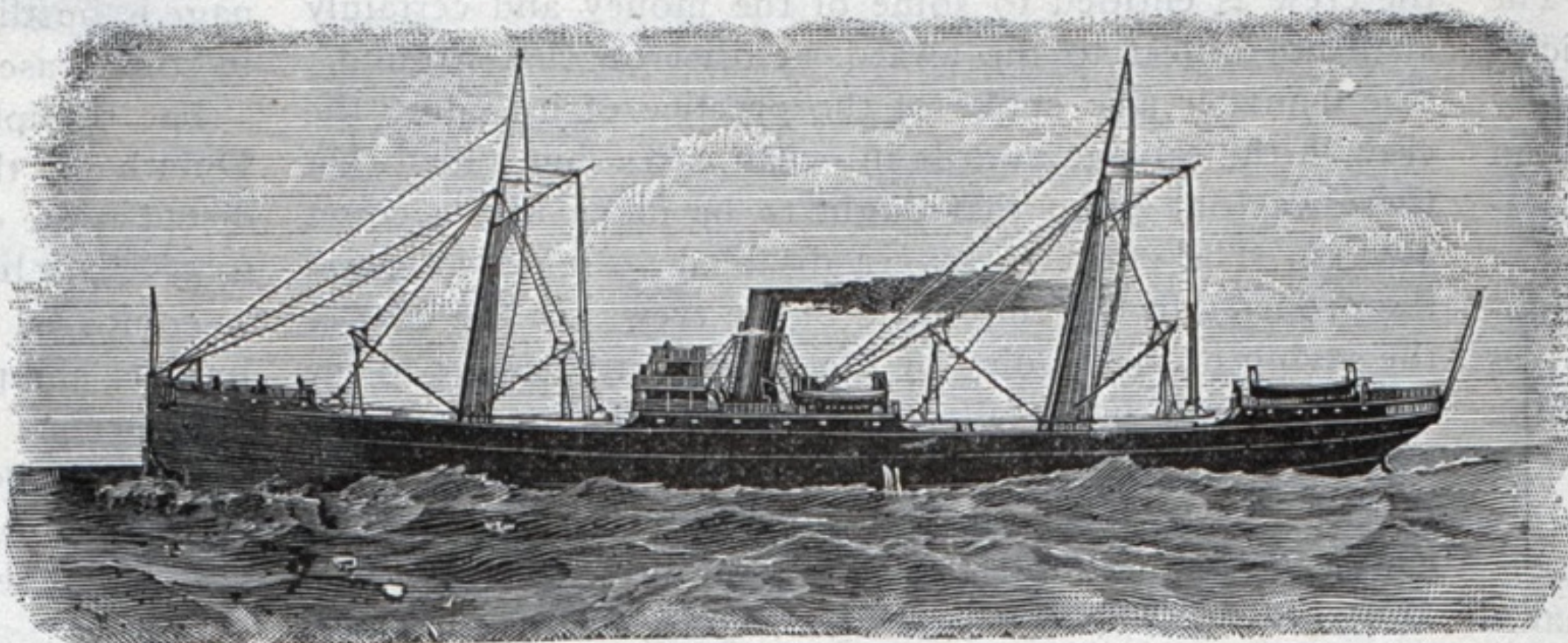
OFFICE:

FOOT WOODWARD AVENUE,  
DETROIT, MICH.**F. W. WHEELER & COMPANY,**

BUILDERS OF ALL KINDS OF

**Iron, Steel, and  
Wooden Ships**

FOR LAKE OR OCEAN SERVICE.

**West Bay City, Mich.**F. W. WHEELER, Pres.  
J. S. PORTER, Treas.H. T. WICKES, V. P.  
C. W. STIVER, Sec'y.**FRONTIER****Iron Works.**

MARINE ENGINES.

DETROIT, MICH.

**William Wilford's****MATCHLESS  
WATER-PROOF  
CANVAS.**The best in the market for hatch  
covers, is stronger, lighter, and more  
durable than any water-proof goods  
yet produced. It is made of a twisted  
thread of pure flax, which renders it  
very strong. It will not crack like  
cotton goods, which is a great advan-  
tage.**EDWARD A. BUNKER,**

Room 617, 27 and 29 William St., New York.

**HONEST JOHN.****MR. JOHN H. DEMING,**  
GENERAL SUPERINTENDENT PEERLESS  
RUBBER MANUFACTURING CO.**RAINBOW PACKING.**THERE IS NO OTHER "JUST AS GOOD."  
WHY? Because no one else knows how to make it.**HE INVENTED IT.**Thousands  
of Imitators.  
No Equal.Will hold  
Highest  
Pressure.

THE COLOR OF RAINBOW PACKING IS RED.

Don't have to use Wire and Cloth to hold Rainbow.  
Rainbow won't Blow Out.**LITERARY NOTES.**A remarkably well-prepared and practical article on  
"The Military Value of the Ship-Yard," by Lewis Nixon,  
the designer of the battleships "Indiana," "Massachusetts,"  
and "Oregon," is published in the June number of the  
North American Review. "Every ship-yard," writes Mr.  
Nixon, "that can build war vessels capable of sustaining  
the armor or using the guns and projectiles of such forges  
against any common enemy, becomes a public shield  
against any and all possible foreign aggression, the value  
of which to the nation at large and in the long run cannot  
be computed by the formulas of trade."Cassier's Magazine for June has among its varied table  
of contents articles upon Steam and Hydraulic Steering  
Gears, with sixteen illustrations of typical designs, by Ed-  
win H. Whitney. The Evolution of the British Coasting  
Steamer, with fifteen illustrations of early and modern  
types, showing construction details, by J. S. P. Thearle.  
The Eophone, illustrated; Utilizing the Tides; A Year's  
Shipwrecks, etc.The Arena for June is not perhaps quite so varied in its  
contents as usual, but it probably more than makes up for  
this feature by an unusually full and thorough discussion  
of several important topics. The number leads off with  
a paper by the Hon. James D. Phelan, Mayor of San Fran-  
cisco, on "Municipal Conditions in California," in which  
he makes a strong plea for the exercise of more rigid  
control over private corporal monopolies, such as those  
which control the street car service, lighting, water-sup-  
ply, garbage disposals, etc. This paper concludes the val-  
uable series of articles on Municipal Reform, written by  
various city mayors, which have been appearing in the  
Arena during the past few months. The editor, John  
garding evolution, showing, in particular, that true evolu-  
tion teaches that organisms have been evolved, not from  
pre-existing organisms different in kind, but from organ-isms similar in kind, but different in degree, or amount,  
of evolution. In "The Editor's Evening," the editor  
Clark Ridpath, in an elaborate paper on "The True Evo-  
lution," points out some current misapprehensions re-  
discourses on such topics as the cause of pauperism and  
crime, the Dingley bill, composite photographs, and Fran-  
cesca and Paolo; and in "Book Reviews" he contributes a  
highly appreciative sketch of the life and poetry of James  
Whitcomb Riley, with special reference to that poet's most  
recent work, "A Child-World."**PETTICOAT RULE.**There is among sailors a superstition that women on  
board ship bring ill luck, and in the days when sailing  
vessels were more numerous, and Jack had a wider op-  
portunity to select among the floating homes one that  
most nearly coincided with his ideas of comfort and  
safety, he was apt to shun those whose captains shared the  
glories and comforts of the after cabin with a better half.  
Nowadays steam has made the opinions of sailors of as  
little account as sailors themselves are, but the prejudice  
survives in the minds of the few old salts that have not  
fallen to the rank of coal shovelers and cleaners of paint.  
To the superficial observer this objection to the presence  
of women at sea, made by a class of men who, when  
ashore, are far from showing indifference to feminine  
charms, would seem to be a particularly absurd and un-  
reasonable piece of nonsense.**LAU CH OF THE AMAZON.**The large new steel towbarge Amazon, built for James  
Corrigan of Cleveland, was launched from the yard of the  
Chicago Shipbuilding Co., at S. Chicago Saturday after-  
noon. The vessel was put together in five weeks' time.**DOCK FACILITIES.**It is announced that the Pioneer Fuel Co., Duluth, will  
increase the size of its coal dock on Rices Point this sea-  
son. The plans are in the hands of the St. Paul officials  
and nothing definite is yet known of the details. The dock  
will receive a substantial addition and machinery in the  
way of Brown hoists will be put in.**F. W. WHEELER & CO.**At the yards of F. W. Wheeler & Co., work is pro-  
gressing lively and there are several good contracts in  
hand. Letting go all political aspirations, Mr. Wheeler  
is now attending strictly to business as a shipbuilder, and  
it is well-known that he has several large and lucrative  
contracts on hand at this date. It appears that Cleveland  
firms are trying to push the Wheeler Ship Building Co.,  
but their efforts will certainly prove futile as there is lots  
of work ahead.I understand that Messrs. Prime & McCurdy are plac-  
ing their lake business as follows:

Indemnity Insurance Co., 50 per cent.

St. Paul Fire &amp; Marine Co., of St. Paul, 5 per cent.

Insurance Co., of North America, 10 per cent.

National Standard Co., of New York, 15 per cent.

And for the remaining 20 per cent are giving contract  
notes on behalf of the World Marine Co. and Mr. F.W.  
Marten's names at Lloyd's. It will thus be seen that  
while London underwriters as a whole were crying out  
for higher rates, the business was being scooped, not by  
foreign competition, but by an old London insurance  
company backed up by another of more recent establish-  
ment and by a philosophic gentleman at Lloyd's. It  
seems to me that underwriters desiring an improvement  
in rates should look at home for a cure of the evil in-  
stead of crying out about the competition they have to  
contend from outsiders.—London Fairplay.



## PRACTICAL METHOD FOR FINDING COMPASS ERRORS.

CONTINUED FROM PAGE 7.

impression by using terms you do not understand. The work is simple but experience is necessary, as the same conditions rarely exist in two different vessels. Do not be the one to furnish experience for future adjusters, let others do that.

The adjuster should not be hurried but be given time to do the work satisfactorily; some vessels require more time than others, as they may present unexpected difficulties to be overcome. It ought to be remembered that the masters of steamers on the Lakes do not always have time or opportunity, when making a passage, to thoroughly check the adjuster's work even if they understand how to do it.

The adjuster should assure himself that as much as possible of the retentive magnetism has been removed, for if there is much of it remaining in the vessel when he puts down the magnets his work will be practically useless in a very short time. A new vessel should be swung twice for compensation, allowing an interval of 2 or 3 months between the first and second time she is swung; after the second swinging the magnets may be covered and secured for a full due. If a compass is compensated for a certain position on the vessel, this compensation will answer for any other compass if it is placed in exactly the same position; this should be remembered, for in case of an accident to the standard compass any other compass, shipped in the exact position that the standard compass occupied, will point as the standard compass did. In vessels where the standard and steering compasses are too near each other, it is important, that when compensating the standard compass the deviation of the steering compass, if possible to prevent it, should not be increased.

The steering compass on some vessels, may, on account of its unfavorable position, be so greatly affected by the ship's magnetism as to make it practically useless; in such a case, or when the deviations of the steering compass are

large, the steering compass as well as the standard compass should be compensated, but the standard compass should be used for all purposes of navigation. In vessels where both the standard and steering compasses are compensated, and the compasses are near each other, care must be taken that the magnets placed to compensate one compass do not affect the other.

If when compensating a compass it is found that the deviations are very large, or that difficulty is encountered in compensating for the deviations, it may be well to move the compass a few feet either forward or aft, taking care to keep it on the amidship line. Shifting the compass a few feet has been known to reduce large deviations over one-half.

## WHY A DEVIATION CURVE OR TABLE IS NECESSARY AFTER THE COMPASS HAS BEEN COMPENSATED.

With some of the masters and pilots on the Lakes the impression prevails that after a compass has been compensated it is, or should be correct. This is true in only a very few cases and then but for a limited time; it requires only a short interval of time, vibrations, shocks or strains, to change the magnetic force in the vessel so as to make the compass point incorrectly. When the adjuster has compensated a compass he should swing the vessel to discover any remaining error, and if any is found he should lay down a deviation curve and make a deviation table for use on the vessel until the master or pilot lays down a curve for himself. The deviation curve and table will not, however, take into account the heeling error; this can only be found by heeling the vessel or by the use of instruments, not by swinging the vessel.

It is safe to assume that after a compass has been compensated it will not remain correct for any length of time, and though the error be small the navigator should know how much it is that he may allow for it in setting his courses.

(To be Continued.)

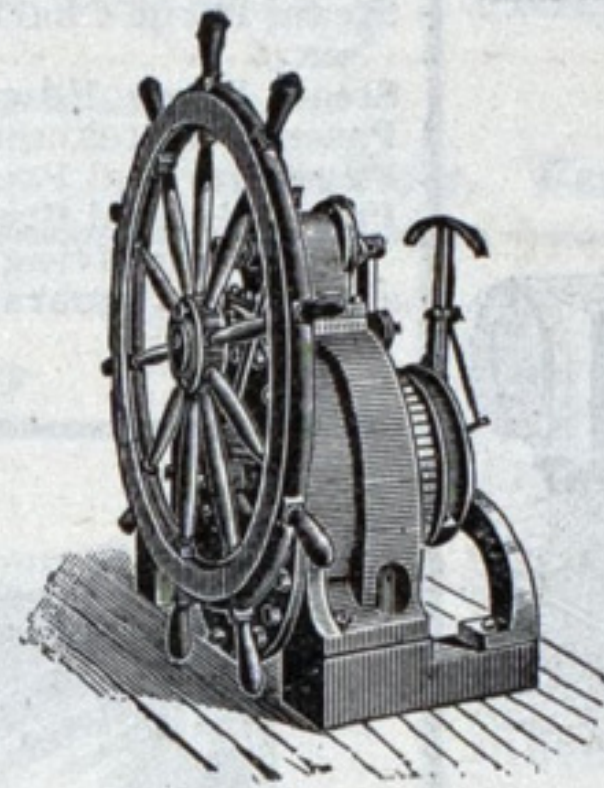
The new twin-screw steamer Kaiser Wilhelm der Grosse, sister ship of the Friedrich der Grosse, of the North Ger-

man Lloyd line, was launched at Stettin, Germany, on May 4th, in the presence of Emperor William. The Kaiser Wilhelm der Grosse is the largest steamer afloat. She is of 28,000 horse power, will carry 20,000 tons of cargo and 1,500 passengers, is 649 feet long, and has four funnels. She has two engines, with quadruple cylinders, occupying separate compartments and working independently of each other. She will sail for New York on September 14th.

Any engineer sending three cents in stamps (to pay the postage) to the Magnolia Metal Co., 266 West street, New York, and mentioning the Marine Record, can obtain a 15-inch brass edged rule.

And now the Fall River Line comes out with a pamphlet containing fifty popular songs, in case their passengers forget what should be uppermost in their minds when out for enjoyment. This line leaves pier 18, North River, New York city, and is one of the most pleasurable routes on the New England coast.

## Queen City Hydraulic Steerer.



THE BEST AND MOST POWERFUL STEERER FOR TUGS, STEAMERS, ETC.

MANUFACTURED BY

Queen City Engineering Co.

BUFFALO, N. Y.

Write for Prices and References.

## TOBIN BRONZE

(Trade-Mark Registered.)

Tensile strength, one inch cold drawn rod, upward of 78,000 lbs. per square inch. Torsional Strength equal to the best machinery steel. Non-corrosive in sea water. Can be forged at cherry red heat. Round, Square and Hexagon Bars for Bolt Forgings, Pump Piston Rods, Yacht Shaftings, etc. Spring Wire, Rolled Sheets and Plates for Pump Linings and Condenser Tube Sheets, Centerboards, Fin Keels and Rudders.

## Ansonia Brass &amp; Copper Co.

SOLE MANUFACTURERS,

Send for Pamphlet. 19-21 Cliff St., NEW YORK.

INCORPORATED 1794.

## Insurance Company of North America

CAPITAL, Paid up in Cash,	-	-	-	-	\$3,000,000.00
ASSETS,	-	-	-	-	9,686,808.08

CHARLES PLATT, President.

GREVILLE E. FRYER, Sec'y and Treas.

T. HOUARD WRIGHT, Marine Secretary.

EUGENE L. ELLISON, Vice President.

JOHN H. ATWOOD, Assistant Secretary.

Lake Marine Department,

GEORGE L. McCURDY, MANAGER.  
CH CAGO, ILL.

## Pintsch Gas Lighted Buoys.

Adopted by the English, German, French, Russian, Italian and United States Light-House Departments for channel and harbor lighting; over 500 gas buoys and gas beacons in service.

## Burn Continuously



from 80 to 365 days and nights without attention, and can be seen a distance of six miles.

Brilliant and Steady Illumination. Economical and Reliable in Operation.

CONTROLLED BY THE

Safety Car Heating and Lighting Co.,

160 Broadway, NEW YORK CITY.

MARINE AND INLAND INSURANCE.

## Atlantic Mutual Insurance Co.

Organized 1842.

Office 51 Wall Street, NEW YORK

Insures against Marine and Inland Transportation Risks and issues policies making Loss Payable in England.

Assets over \$10,000,000 for the Security of its policies.

The profits of the Company revert to the assured, and are divided annually upon the premiums terminated during the year; thereby reducing the cost of insurance. For such dividends, certificates are issued bearing interest until ordered to be redeemed, in accordance with the charter.

W. H. H. MOORE, Pres. A. A. RAVEN, V. Pres. F. A. PARSONS, 2d V. P. J. H. CHAPMAN, Sec'y

NEW YORK.  
PHILADELPHIA.  
BOSTON.BALTIMORE.  
SAN FRANCISCO.  
NEW ORLEANS.

## Johnson &amp; Higgins,



Average Adjusters,  
And  
Fire and Marine  
Insurance.

Special Facilities for Placing Marine Lines.

Guaranty Bldg., BUFFALO, N. Y.

**SELLERS' RESTARTING INJECTOR**

LONG SERVICE, WIDE RANGE, SIMPLEST AND BEST, LONG LIFE, HOT WATER.

For Stationary, Portable, Traction Engines, Tugboats, &c. Thoroughly Reliable—Perfectly Automatic.

JENKINS BROS., - Selling Agents, NEW YORK, BOSTON, PHILA., CHICAGO.

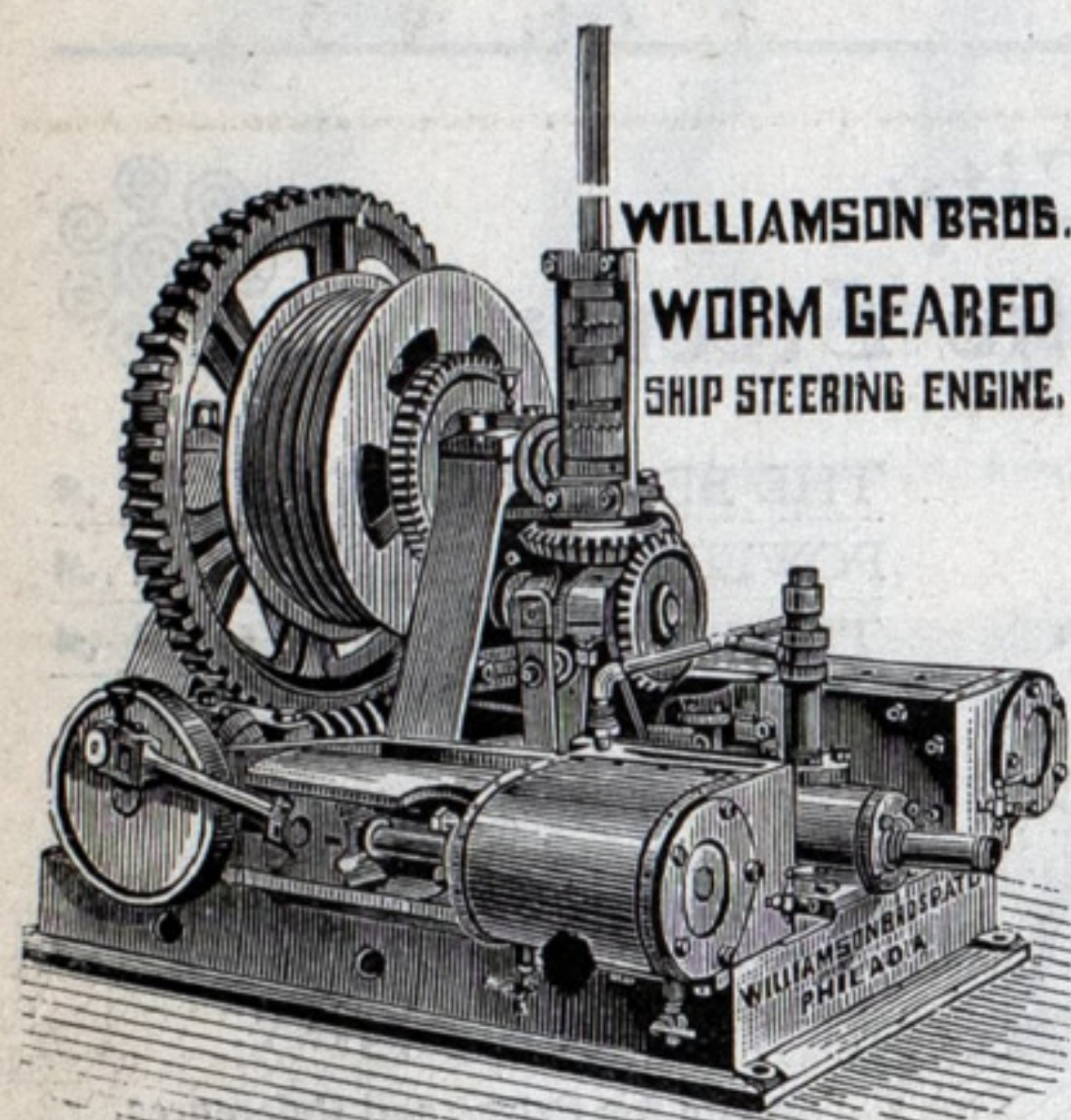


**A. J. MORSE & SON.**  
**DIVING APPARATUS**  
 140  
**CONGRESS ST. BOSTON.**



## WILLIAMSON BROS.,

COR. RICHMOND AND YORK STS.,  
 Philadelphia, Pa.



HOISTING ENGINES and SHIP  
 STEERING ENGINES.

With either Fractional, Spur or Worm Gear of  
 Various Patterns to Suit all Purposes.

ESTABLISHED 1871. INCORPORATED 1893.  
**Montague Iron Works Co.**

MANUFACTURERS OF

**Marine and Stationary Engines  
 AND BOILERS OF ALL KINDS.**

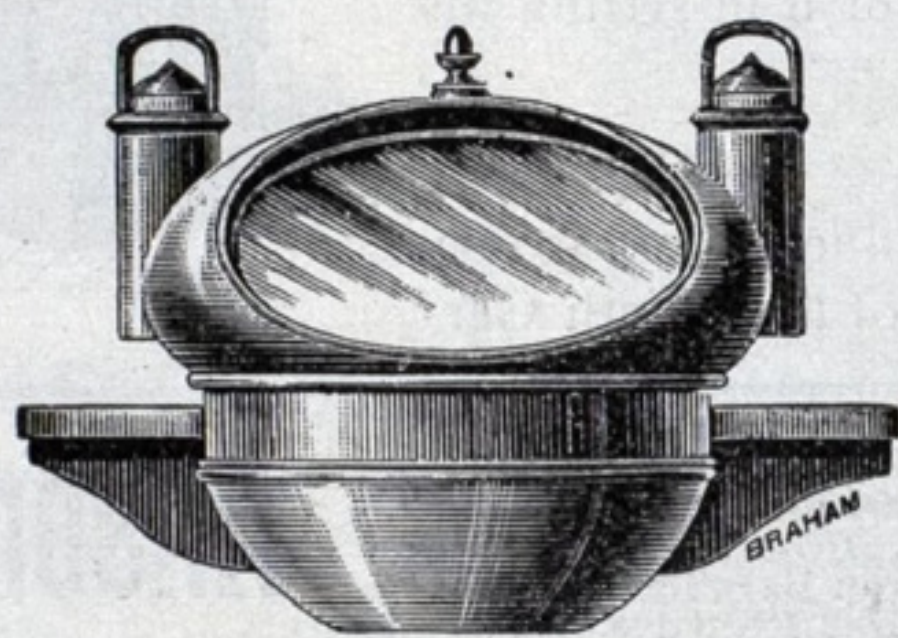
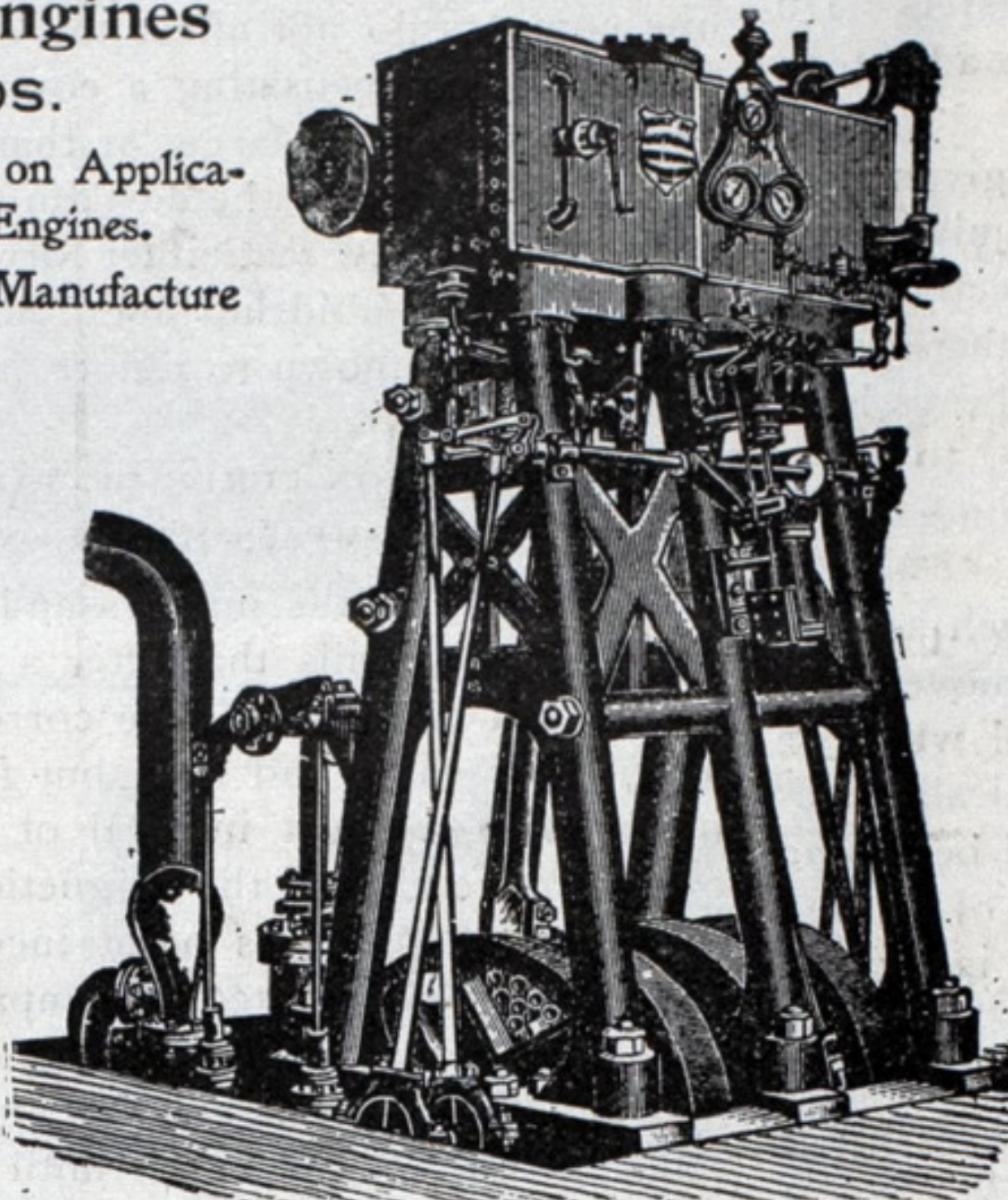
Heavy Castings a Specialty. Prices Quoted on Applica-  
 tion. Fore and Aft Compound Marine Engines.

The Engines in the following boats are of our Manufacture

Tug Hunter, Chicago, 15 and 28x22.  
 Tug Tacoma, Chicago, 16 and 30x24.  
 Tug Zenith, Duluth, 18 and 36x30.  
 Steamer Glenn, South Haven, 14 and 28x20.  
 U. S. Survey Steamer, W. S. Hancock 12 and 21x20.  
 Steamer Pine Lake, Charlevoix, 16 and 30x24.  
 Passenger Steamer Pilgrim, St. Clair, 14 and 28x20.  
 Steam Barge Iona, Grand Haven, 24 and 46x42.  
 Steam Barge M. T. Greene, Chicago, 20 and 36x36.  
 Steamer H. W. Williams, South Haven, 18 and 36x30.  
 Steam Barge Mark B. Covell, Manistee, 18 and 30x26.  
 Steam Barge Isabella J. Boyce, Michigan City,  
 19 and 32x26.  
 Steam Barge Luella H. Worthington, Cedar  
 River, 19 and 36x30.  
 Passenger Steamer City of Kalamazoo, South  
 Haven, 20 and 40x30.  
 Steamer Oval Agitator, Chicago, 14 and 28x20.  
 Tug E. G. Crosby, Muskegon, 16 and 30x24.  
 Tug Peter Coates, Sault Ste. Marie, 10 and 20x16.  
 Steamer Lorain L. South Haven, 12 and 21x16.  
 Passenger Steamer Lotus, Escanaba, 16 and 30x24.  
 Steam Barge Sachem, Grand Haven, 21 and 38x36.  
 Passenger Steamer Bon Ami, Saugatuck, 14 and  
 28x20.  
 Steam Barge Charles A. Street, Chicago, 20 and  
 36x36.  
 Steam Barge Edward Buckley, Manistee, 18 and 36x30.  
 Passenger Steamer E. G. Maxwell, Pentwater, 14 and 28x20.  
 Passenger and Freight Steamer Bon Voyage, Saugatuck, 16 and 30x26.  
 Passenger and Freight Steamer Mabel Bradshaw, Muskegon, 26 and 28x26.

The engraving represents our 20 and 36x36 Fore and Aft Compound Marine Engine. We build them  
 all sizes and guarantee them to give satisfaction. Prices furnished on application.

MONTAGUE IRON WORKS CO., Montague, Mich.



## FRANK MORRISON,

Compass Adjuster

and manufacturer of

Nautical Instruments

Compasses, Barometers, Patent Logs, Binnacles, Steam  
 Gauges, Marine Glasses, Engine Indicators.

All Nautical Instruments Carefully Repaired.

OFFICE WITH UPSON, WALTON & CO., 161 RIVER ST.,  
 CLEVELAND, O.

## Marine Engines.

SINGLE and  
 COMPOUND.

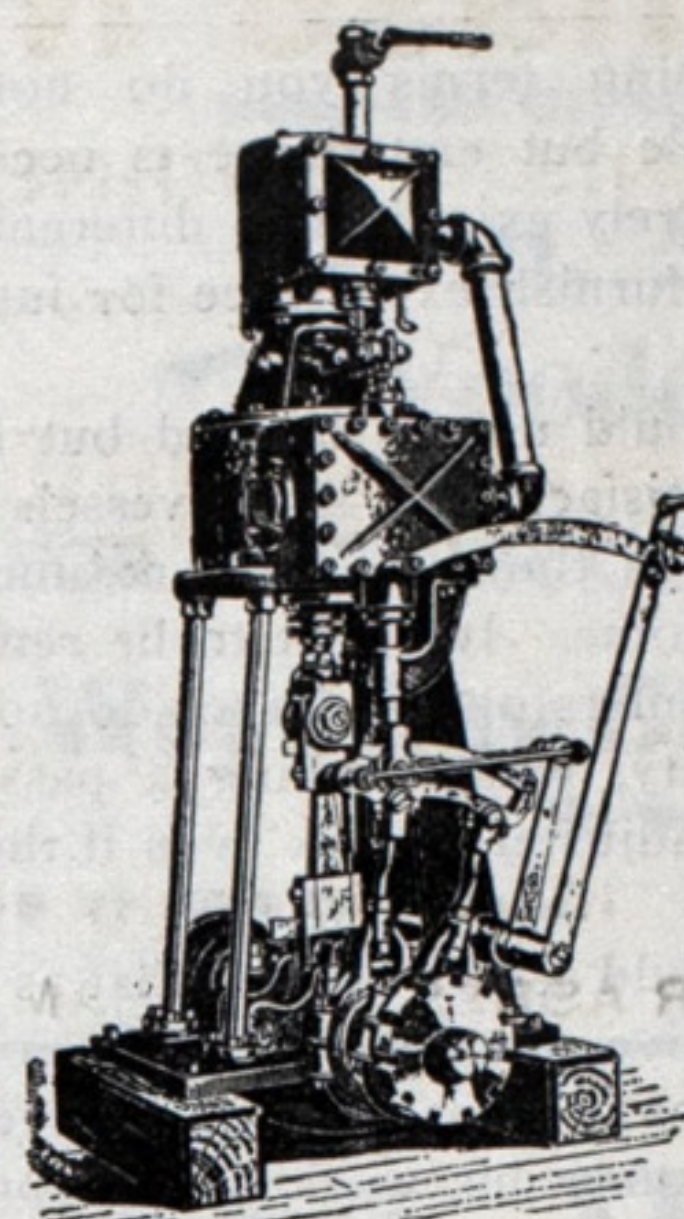
5 to 200 HORSE  
 POWER. These en-  
 gines are high-class  
 in workmanship and  
 material and moder-  
 ate in price.

Send for cuts, de-  
 scription and prices.

Centrifugal  
 Pumps

For raising coal,  
 sand, etc. For dredg-  
 ing, wrecking, and  
 circulating.

Write for cata-  
 logue.



MORRIS MACHINE WORKS,  
 Baldwinsville, N. Y.

HENION & HUBBELL, Agts, 61-69 N. Jefferson St.,  
 Chicago, Ill.

ABRAM SMITH. ANGUS H. SMITH.

## Abram Smith & Son, SHIPBUILDERS,

ALGONAC, MICH.

WOODEN SHIPS  
 OF ANY DESCRIPTION  
 BUILT, REBUILT or  
 REPAIRED.

Send for Specifications, Prices, Etc Good  
 Slips for laying up boats.

## Buffalo Feed Water Heater AND PURIFIER.

Made in all Sizes and to Suit all Conditions.

ROBERT LEARMONTH,

200 Bouck Ave., BUFFALO, N. Y.

Send for Catalogue.

## Boats for Amateur Builders.

All designs shown in my new "ALBUM OF DE-  
 SIGNS" to scale as indexed or enlarged full size  
 very cheap.

SPECIAL DESIGNS TO ORDER.

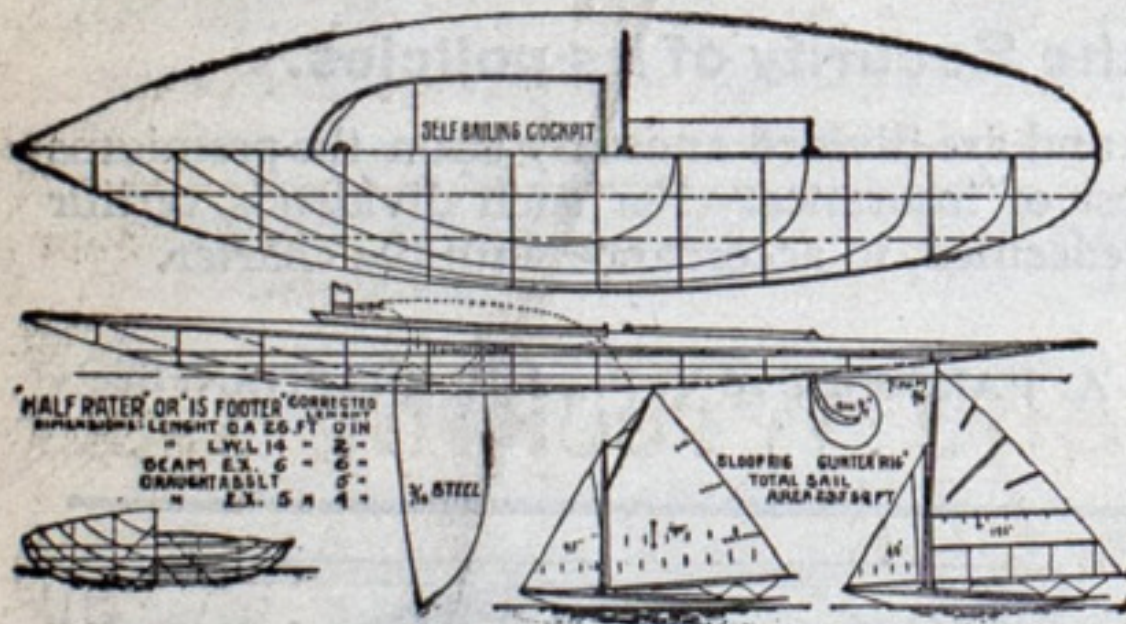
Patterns, Moulds and Instructions to Amateur  
 Builders.

Small Steam and Sailing Craft Built and Rigged  
 entirely or in part.

Stem and Stern Posts, Keels, Frames furnished  
 worked in the wood. All kind of boats set up frame  
 and shipped "knockdown" to any part of the world.

SEND 50 CENTS FOR 72-PAGE "ALBUM OF DESIGNS."

FRED W. MARTIN, Yacht Designer, North Chicago, Ill., FORMERLY  
 RACINE, WIS.



## The Cuddy-Mullen Coal Co.

Miners and  
 Shippers of

## STEAM COAL

FUELING DEPARTMENT  
 FACILITIES.

CLEVELAND HARBOR.—Car Dumper; Eight Pockets, 1000 Tons Capacity; Lighter  
 Steam Derricks.

DETROIT RIVER BRANCH.—Amherstburg; Four Pockets; Three Steam Derricks;  
 SANDWICH—Ten Pockets and Two Steam Derricks.

"SOO" RIVER BRANCH.—Two Docks, (Formerly known as the Anthony and Watson  
 Docks,) Equipped with Pockets and Steam Derricks.

GOOD  
 COAL.

COURTEOUS  
 ATTENTION

QUICK  
 DISPATCH.

General Offices, Perry-Payne Bldg., Cleveland, O.

## Youghioghenny River Coal Co.,

MINERS AND SHIPPERS OF

OCEAN MINE,  
 YOUGHIOGHENY GAS  
 AND STEAM COAL.

General Office: Erie, Pa., Long Distance 'Phone 409.

Shipping Docks: Ashtabula, O., Long Distance 'Phone 76.

Vessels fueled at all hours with Ocean coal only, by Steam  
 Lighter, Car Dump or Derricks. Electric Light.

## The Electro-Dynamic Co.

224 Chestnut St., PHILADELPHIA.

ELECTRICAL ENGINEERS and Manufacturers of ELECTRICAL MACHINERY.

Complete Light and Power Plants for Towns, Office Buildings, Railways and  
 Private Houses.

COMPLETE ELECTRICAL MARINE EQUIPMENTS

Installed on St. Louis, St. Paul and other steamers of the American Line, making a total of  
 twenty-two direct coupled dynamos aggregating about 15,000 lights. Complete  
 Lighting Plants on Yachts Columbia, Thespia, Rambler, Enterprise  
 and others.

Portable Electric Drill Motors now in use at Cramp's Ship Yard, Union Iron Works, Newport News  
 Ship Yard, Brooklyn Navy Yard Crescent Ship, Yard Pennsylvania Railroad.

MARINE SPECIALTIES.



# The Chase Machine Co.

MACHINISTS, ENGINEERS, BLACKSMITHS.

MANUFACTURERS OF

## Land and Marine Engines and Steam Pumps.

SOLE OWNERS AND MANUFACTURERS OF THE

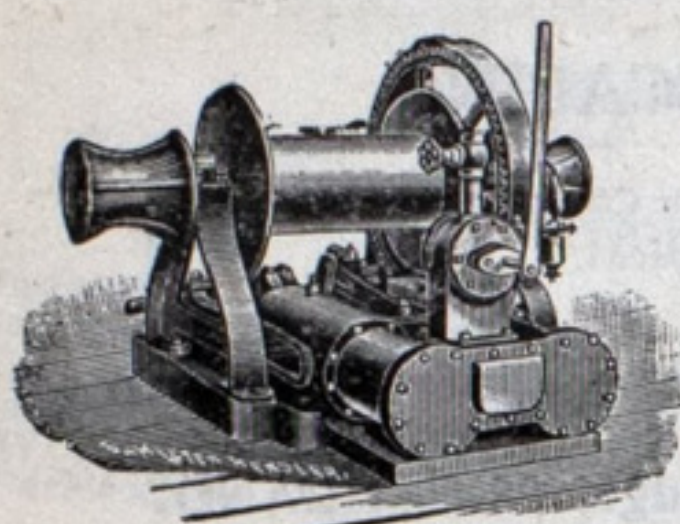
CHASE AUTOMATIC FOG WHISTLE MACHINE.

In use on nearly all Lake Steamers.

AGENTS FOR ASBESTOS STEAM, BOILER AND PIPE COVERING.

Telephone 994.

III Elm St., CLEVELAND, O.



## Dock and Deck Hoists

ALL KINDS OF

Machinery and Friction Hoists.

Send for Prices  
and Circulars.JACKSON & CHURCH,  
Saginaw, Mich.

# John E. Thropp & Sons' Co.

BUILDERS OF

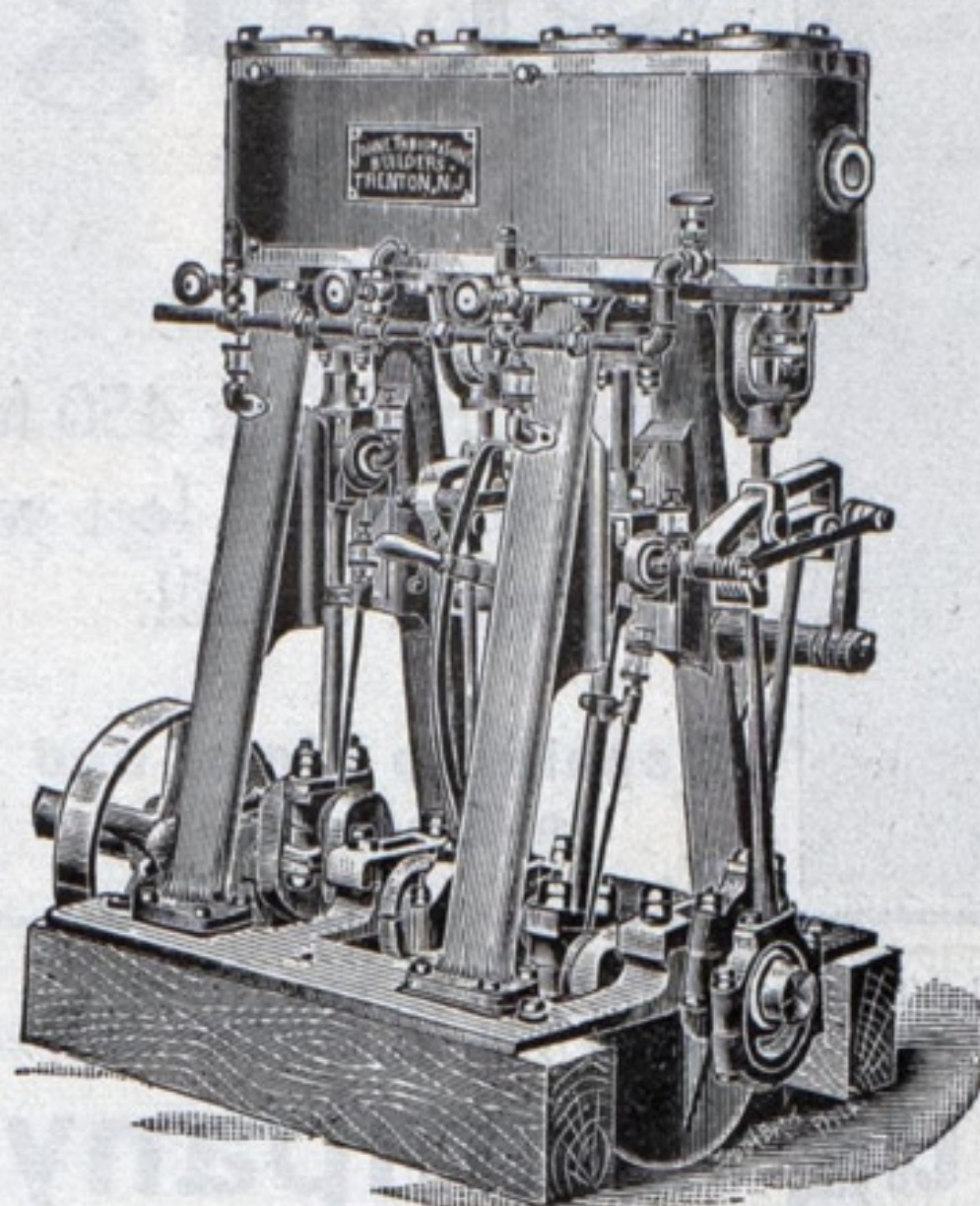
Compound and Triple Expansion

## ENGINES,

Boilers, Surface Condensers, Propeller  
Wheels, Etc.Contracts taken for yachts and tugs  
complete. Send for photographs of En-  
gines and descriptive pamphlet.

Works on Delaware &amp; Raritan Canal Basin.

TRENTON, N. J.



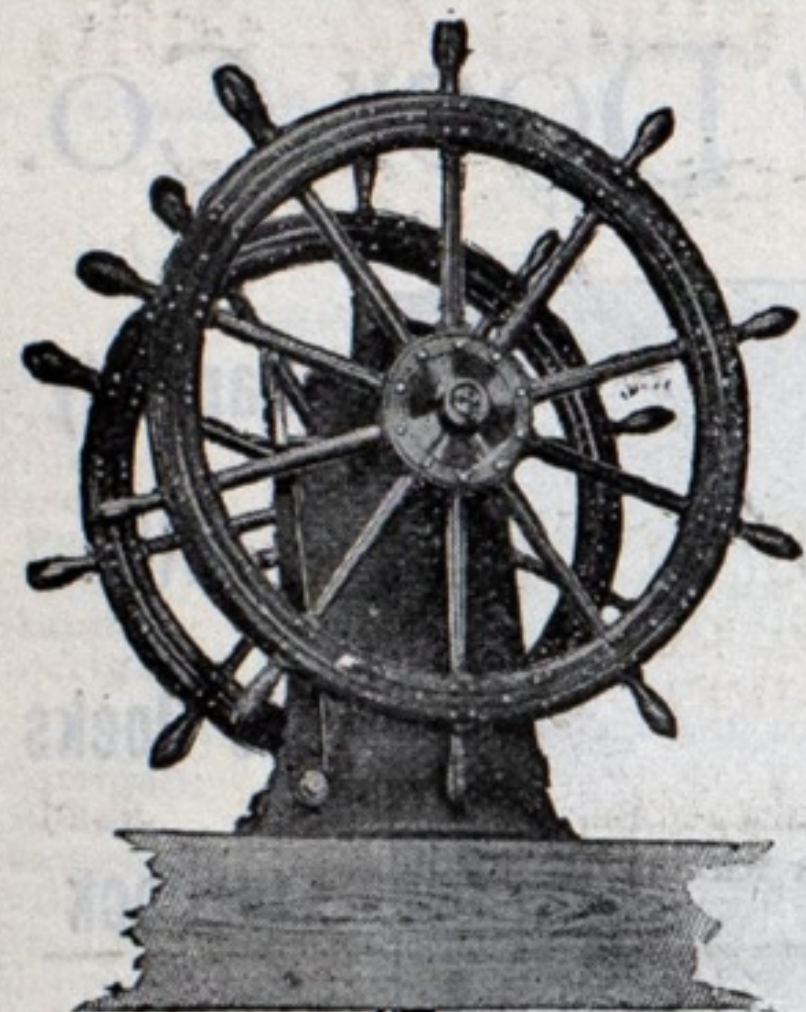
## Beeson's Marine For 1897. Directory

IS NOW OUT.  
PRICE \$5.00.

MAIL ORDERS WILL RECEIVE PROMPT ATTENTION.

The Marine Record Pub. Co.

Fourth Floor, Western Reserve Bldg., CLEVELAND, O.

No. 8  
Beck Patent  
Steam and  
Hand Steering  
Gear.BUILT BY  
Pawling & Harnischfeger,  
Milwaukee, Wis.Simplest,  
Strongest  
and most  
Reliable.  
Changed  
from Steam  
to Hand or  
back by one  
lever in less  
than one  
Second.

## Neversink Cork Jacket and Life Belt.

Warranted 24 lb. Buoyancy and full Weight of Cork, as required by U. S. Inspectors. Consolidated Cork  
Life Preservers. Superior to all others. Rings Buoys and Fenders. SAFEST CHEAPEST.Approved and adopted by U. S. Board of Supervising Inspectors.  
Also adopted by the principal Ocean, Lake and River Steamer Lines as  
the only Reliable Life Preserver. Vessels and trade supplied. Send for  
Catalogue.

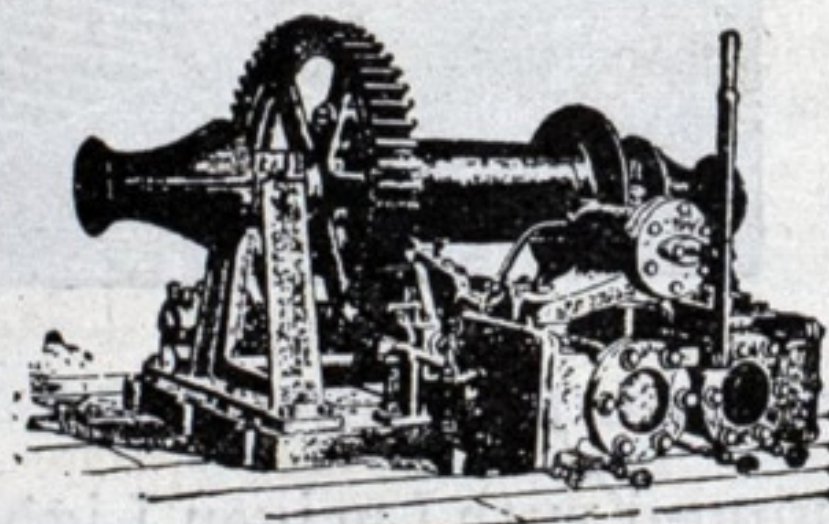
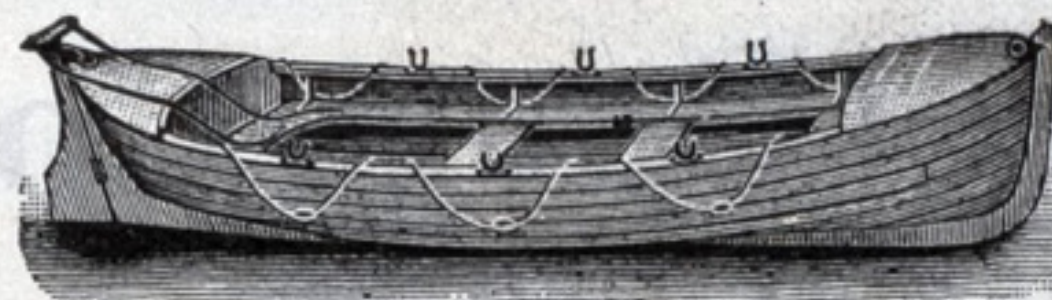
Awarded four medals by World's Columbian Exposition.

METALLIC  
and  
WOODEN  
LIFE  
BOATS.

Metallic Life Rafts, Marine Drags.

Manufacturer of Woolsey's Patent Life Buoy, which is the lightest,  
cheapest and most compact Life Raft known. Send for illustrated cata-  
logue. Get our prices before buying elsewhere.

D. KAHNWEILER, 437 Pearl St., New York City.



## HOISTING ENGINES

We build them in all sizes from new and improved  
designs. Every engine thoroughly tested before  
leaving our shop, and guaranteed to be satisfactory  
in every case.

MARINE IRON CO.,

BAY CITY MICH.

## J. J. Keenen, RIVERSIDE STEAM BOILER WORKS.

Marine, Locomotive, and  
Stationary Boilers.MARINE WORK A SPECIALTY.  
SHEET IRON WORK OF ALL KINDS.

Repairing Promptly Attended to.

OFFICE AND WORKS, COR. COLOGNE AND FULLER STREETS,

Telephone Canal 401.

CHICAGO.

J. H. OWEN, Pres.,  
Chicago.F. H. VAN CLEVE, Sec.,  
Escanaba.Capt. GEO. BARTLEY, Supt.,  
Escanaba.

## Escanaba Towing and Wrecking Co.

ESCANABA, MICH.

Tugs, Lighters, Steam Pumps, Hawsers, Hydraulic Jacks and Diving Appliances always ready

TUG MONARCH—Engine Compound, Cylinder 16 and 80 in. diameter, 30 in. stroke, steam pressure al-  
lowed 125 pounds. TUG DELTA—Cylinder 20 by 22, steam pressure allowed 105 pounds.  
TUG OWEN—Cylinder 20 by 20, steam pressure allowed, 104 pounds.

CENTRIFUGAL PUMPS.

SEVEN AND FOURTEEN INCH SUCTION.

## Steam Yacht FOR SALE.

Nine hundred dollars will buy the trim  
little steam yacht "Phil Gerst." Built in  
1894—22 gross tons, 15 net. Allowed 25 pas-  
sengers. Has a non-con. engine—7-inch  
cylinder and 9-inch stroke. Boiler of steel  
6 ft. high, 48 in. in diameter and allowed 135  
lbs. steam. Boat is 38 ft. 2 in. long, 9 ft. 2  
in. beam and 3 ft. 9 in. deep. For further  
information call upon W. H. BRADISH,  
1012 Real Estate Exchange, Buffalo, N. Y.

CHICAGO.

## BARRY BROS.' Independent Tug Line.

TUGS.

Ritta McDonald.  
Crawford.  
C. M. Charnley.  
D. P. Hall.  
Ira O. Smith.Wm. Dickinson.  
W. H. Wolf.  
Welcome.  
Commodore.  
Jack Barry.

Office 240 South Water Street.

TELEPHONE MAIN 273.

3 Long Whistles call our Tugs.

DULUTH.

## BARRY Towing--Wrecking Co.

TUGS.

G. A. Tomlinson.  
Industry.  
Violet H. Raber.  
Prodigy.

Office foot Fifth Avenue West.

TELEPHONE 544.

3 Long Whistles call our Tugs.

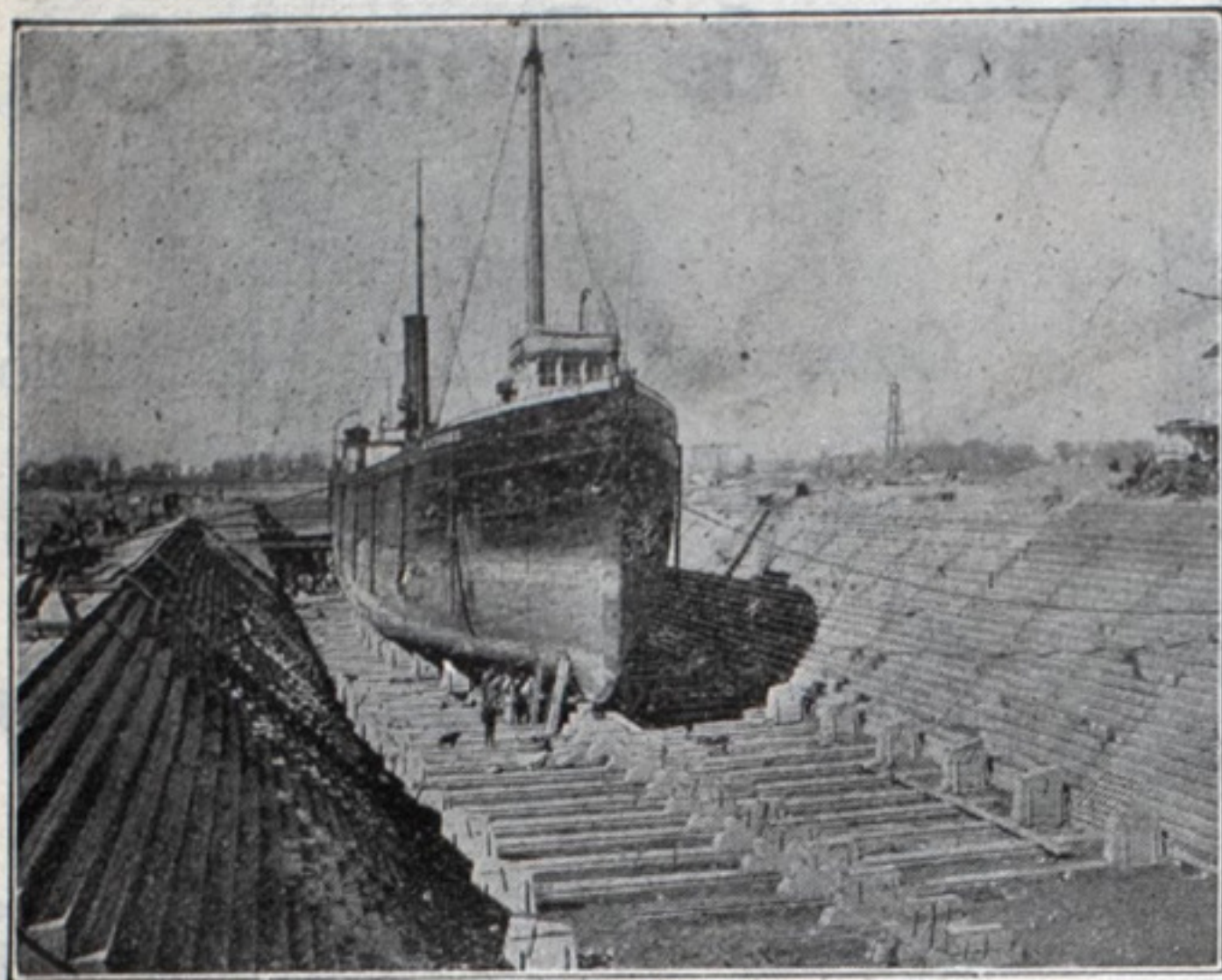
## U. S. Hydrographic Office Charts

BOOKS OF SAILING  
DIRECTIONS, ETC.ARE FOR SALE AT THE  
OFFICE OF

The Marine Record,

Western Reserve Building,  
CLEVELAND, O.





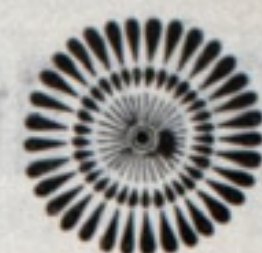
# Craig Ship Building Co.

## TOLEDO, OHIO.

New Dry-Dock 450 feet long, 110 feet wide on top, 55 feet wide on bottom, 16 feet water on sill.

Repairs to Metal and Wooden Ships a Specialty.

**Metal**  
and **Wooden**  
**Ship Builders.**



H. A. HAWGOOD, Pres't.  
PHILIP MINCH, Vice-Pres't.

C. A. MORGAN, Gen'l Mang'r.

J. A. SMITH, Sec'y.  
J. R. SPRANKLE, Treas.

## The Cleveland Tug Company,

First-class Tugs,  
Steam Pumps,  
Divers, Hawsers,  
Lifting Screws,  
Etc., furnished  
Promptly on  
Orders by Tele-  
graph or oth-  
erwise.



Steamers when  
outside wanting  
our Tugs, blow  
one long whistle  
and as many  
short ones as  
they want tugs.

OPEN DAY and NIGHT.  
Long Distance Telephone 725.

OFFICE 23 RIVER ST.

The "CINCINNATI"  
Automatic Steam Steering Gear.  
Simple, Powerful Machine.  
Noiseless and Sure.  
Send for Circular.

FRONTIER IRON WORKS, Detroit Mich.  
Agents for the Lakes.

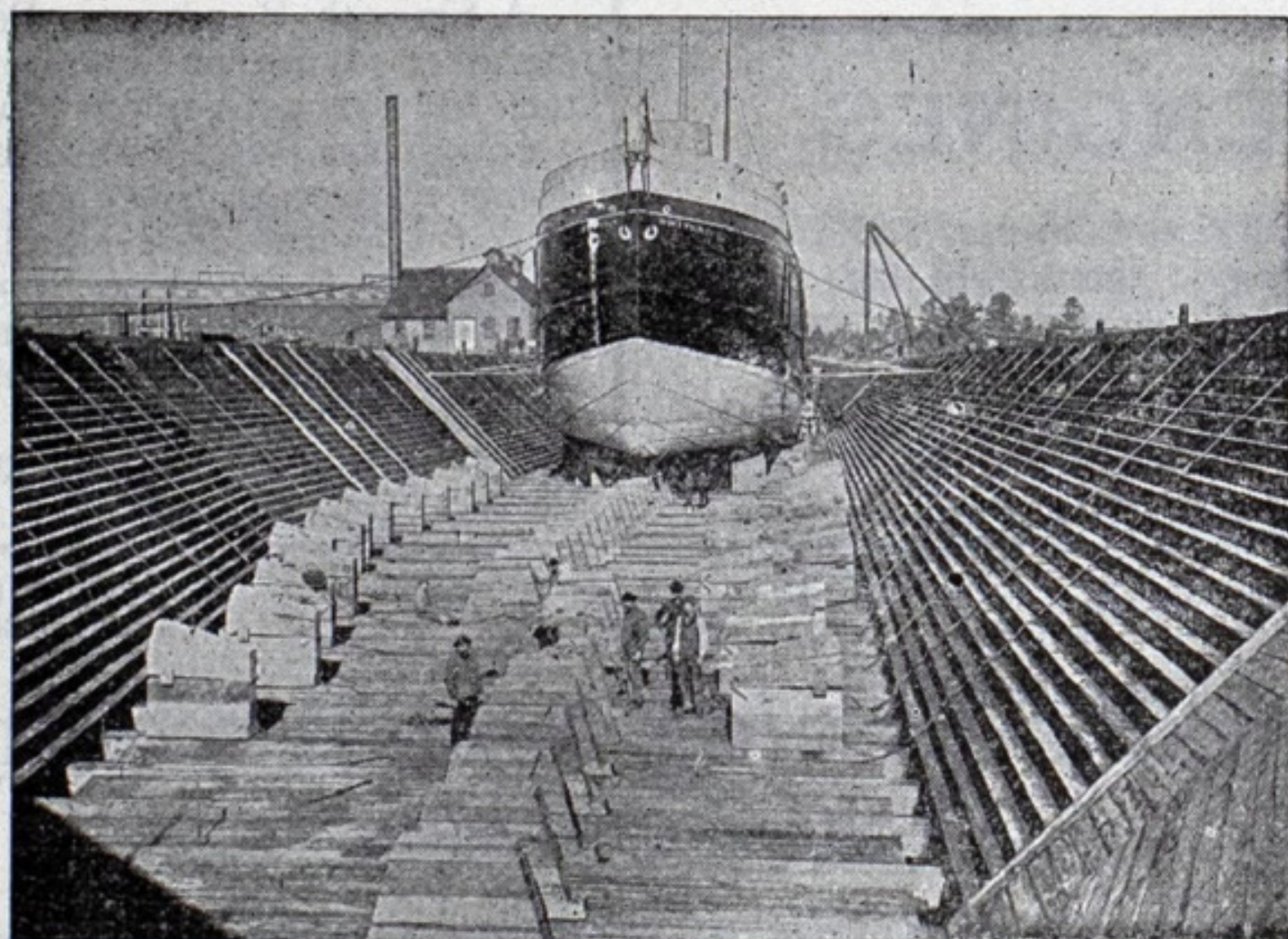
## American Steel Barge Co.

### STEEL AND METAL SHIPS

Of all Classes built on shortest possible notice at our yards at  
WEST SUPERIOR, WIS., and also at EVERETT, WASH.

PHOTOGRAPH OF 300-FOOT BOAT IN DOCK.

Plates and  
Material  
always on  
hand to  
repair all  
kinds of  
Metal  
Ships in  
Shortest  
Time.



Best  
Quality of  
Oak in  
Stock  
for  
Repairing  
Wooden  
Vessels  
of all  
Classes.

#### SIZE OF DOCK

Length, Extreme.....	587 feet.	Entrance, Top.....	55 feet 9 in.
Breadth, Top.....	90 " 4 in.	Entrance, Bottom.....	50 "
Breadth, Bottom.....	52 "	Depth over Sills.....	18 "

LARGEST DRY-DOCK ON THE LAKES.

Prices for Repairs and Docking  
same as at Lower Lake Ports.

SUPERIOR, WIS.

A Number of Propeller Wheels in Stock at Dry-Dock.

## A. Gilmore's Sons,

**Dry-Docking,  
Ship Building and  
Repairing.**

EAST SIDE, NEAR IRONVILLE, - - - TOLEDO, O.

Dimensions of Dock, 236 feet long, 55 feet wide at top and 37 feet wide at gate. Nine feet water over sill. RATES OF DOCKING, Ten Cents per registered gross ton for vessels over 200 tons. Jig Mill and Planer in connection with Dock.

'PHONE NO. 157.

Paint Your  
Vessel with

## Superior Graphite Paint

NO BLISTERING, CRACKING OR SCALING.

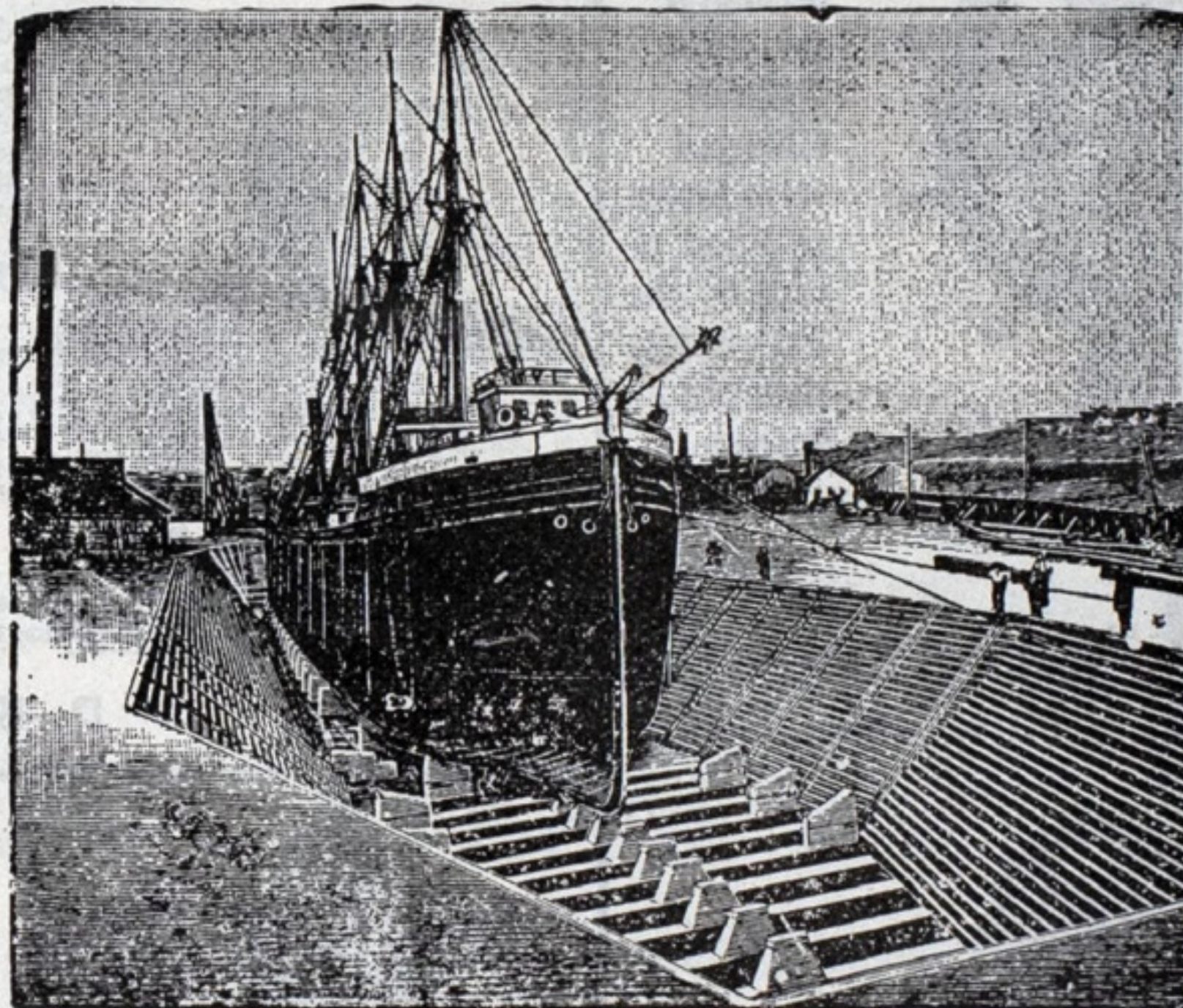
Made especially for Stacks, Decks, Sides, Hulls, and Water Compartments.  
Strictly Anti-Rust, and most durable and economical.

DETROIT GRAPHITE MFG. CO., 542 River St., Detroit, Mich.

WHITTON & BATES, Agents, 503 Perry-Payne Bldg., CLEVELAND.

## THE SHIP OWNERS DRY DOCK CO.

Largest  
DOCK  
YARD  
on the  
GREAT  
LAKES.



Capacity  
with  
Two Docks  
to Dock  
the  
Largest  
Ships on  
the Lakes.

GENERAL REPAIR WORK PROMPTLY ATTENDED TO.

Being equipped with Lucigen Lights we do work at night as well as day.

TELEPHONE 1635.

Foot of Weddell Street, CLEVELAND, O.

C. A. MACDONALD & CO.,

GENERAL MARINE INSURANCE AGENTS,

Rialto Building.

CHICAGO, ILL.

THOMAS WILSON,

MANAGING OWNER WILSON'S TRANSIT LINE,

General Forwarder, Freight and Vessel Agent,

CLEVELAND, O.

JOHN MITCHELL.

JOHN F. WEDDOW.

ALFRED MITCHELL.

MITCHELL & CO.,

VESSEL AND INSURANCE AGENTS,

Office Telephone, 767.

Residence John Mitchell, 'Phone 3506. 508-509-510 Perry-Payne Bldg. Cleveland, O.

C. R. JONES & CO.,

VESSEL AGENTS,

FIRE AND MARINE INSURANCE,

Nos. 501, 502 and 503 Perry-Payne Bldg.

CLEVELAND, O.